Comments on Draft Highway Design Manual (Due July 8, 2011)

State of California - Branches, Agencies, Departments, Offices, etc.

Commentor 1E: **John Melvin (email dated 6-29-11)**
Organization: **California Department of Forestry and Fire Protection**

Comment Number	Chapter & Index	Index Title	Comment/Issue	Resolution of Comment/Issue	Commentary, as necessary, on Resolution of Comment/Issue
1E-001	900; 902.1 (b) last bullet; page 900-711	General; Design Considerations - Safety	We are unsure of the reasoning for the following two statements and are neutral on these. We encourage tree planting wherever spacing and safety allow for trees that require a reasonable amount of maintenance. Is ther an over-riding reason that median planting should not occur along freeways? Median Planting - Median planting should not be permitted on freeways. Exceptions for the planting of freeway medians are approved by the District Director if the planting can be safely maintained.	Comment(s) beyond the scope of this HDM update.	HDM is currently being reviewed in a separate effort related to safety for highway workers and the traveling public.
1E-002	900; 902.3 (4)(e); page 900-714	Planting Guidelines	We are unsure of the reasoning for the following statement and are neutral on it (see comment above for exact statement): **The planting of large trees shall not be permitted in medians, with posted speeds of greater than 45 miles per hour.** Exceptions to this standard require the approval if the Design coordinator and the concurrence of the Headquarters Traffic Liaison.	Comment(s) beyond the scope of this HDM update.	HDM is currently being reviewed in a separate effort related to safety for highway workers and the traveling public.

Commentor 2E: **Colin Hanley**
Organization: **California Department of Water Resources - Fish Passage Improvement Program**

Comment Number	Chapter & Index	Index Title	Comment/Issue	Resolution of Comment/Issue	Commentary, as necessary, on Resolution of Comment/Issue
2E-001	General Comment		From a fish passage perspective, I was surprised not to find mention of two very relevant fish passage design references: a. the May 2007 Fish Passage Design for Road Crossings by Bruce Swanger of Caltrans: http://www.dot.ca.gov/hq/oppd/fishPassage/index.htm, and b. Part XII Fish Passage Design and Implementation by Michael Love and Kozmo Bates in the Department of Fish and Game's California Salmonid Stream Habitat Restoration Manual: http://www.stream.fs.fed.us/fishxing/fplibrary/Love_and_Bates_2009_Fish_Passage_Design_and_Implementation.pdf	Comment(s) beyond the scope of this HDM update.	Comments passed on to Office of Highway Drainage Design for future consideration.
2E-002	Chapter 100		Page 100-110, Special Considerations: "(f) Provide for adequate fish passage through highway culverts or under bridges when necessary to protect or enhance fishery resources." Comment: This appears to be the first mention of fish passage concerns, and might be a good place to cite the above references.	Comment(s) beyond the scope of this HDM update.	Comments passed on to Office of Highway Drainage Design for future consideration.
2E-003	Chapter 800; Topic 802	Drainage Design Responsibilities	Pages 800-476 and 477; Comment: Consider assigning responsibility for determining if culverts are located in a fish-bearing stream, and if so, assign responsibility for ensuring adequate fish passage is provided.	Comment(s) beyond the scope of this HDM update.	Comments passed on to Office of Highway Drainage Design for future consideration.
2E-004	Chapter 800; Index 802.2	Culvert Committee	Page 800-478; Comment: Consider adding a function to the Culvert Committee (f): provide design guidance and support for fish passage criteria for culverts.	Comment(s) beyond the scope of this HDM update.	Comments passed on to Office of Highway Drainage Design for future consideration.
2E-005	Chapter 800	(2) Proposed Upstream Development:	Page 800-479; Comment: Consider adding the following: "Increased runoff from upstream development can also lead to scour and vertical channel incision that can undermine structural integrity of culverts and develop fish passage barriers at culvert outlets in fish-bearing streams."	Comment(s) beyond the scope of this HDM update.	Comments passed on to Office of Highway Drainage Design for future consideration.

2E-006	Chapter 820	Cross Drainage	Page 820-533; Comment: I can't find reference to fish passage design for culverts located in fish-bearing streams in this chapter. Consider adding a brief introduction to the relevant design criteria pertaining to fish passage; the concepts that different species of fish have distinct maximum jump heights, maximum burst swim speeds, and maximum prolonged swim speeds which impact culvert design in fish-bearing streams. This brief introduction to the issue, along with citation of the following design guides would suffice: a. the May 2007 Fish Passage Design for Road Crossings by Bruce Swanger of Caltrans: http://www.dot.ca.gov/hq/oppd/fishPassage/index.htm, and b. Part XII Fish Passage Design and Implementation by Michael Love and Kozmo Bates in the Department of Fish and Game's California Salmonid Stream Habitat Restoration Manual: http://www.stream.fs.fed.us/fishxing/fplibrary/Love_and_Bates_2009_Fish_Passage_Design_and_Implementation.pdf	Comment(s) beyond the scope of this HDM update.	Comments passed on to Office of Highway Drainage Design for future consideration.
2E-007	Chapter 820; Index 823.2	Alignment and Slope of Culverts:	Page 820-536; "On flat grades where sedimentation may occur, place the culvert inlet and outlet above the streambed but on the same slope." Comment: I'm not sure I follow the logic of placing a culvert above a stream's grade line from a maintenance perspective, and in fish-bearing streams, this would likely create a barrier to fish. I would suggest recommending over-sizing culverts in depositional reaches, instead of perching them above the streambed. If the perched culvert approach remains, I suggest adding the qualification that this approach would not be appropriate for fish-bearing streams.	Comment(s) beyond the scope of this HDM update.	Comments passed on to Office of Highway Drainage Design for future consideration.

City and County Governments

Commentor 3E: **Richardo Oleo & Dustin White**
Organization: **City and County of San Francisco**

Comment Number	Chapter & Index	Index Title	Comment/Issue	Resolution of Comment/Issue	Commentary, as necessary, on Resolution of Comment/Issue
3E-001	General Comment		One general comment we had on the Foreword under "Purpose" (page 41) and Chapter 60, is that the future HDM should define further what it means exactly when it uses the words "may," "should, and "shall." Because of the precedents created by the California Manual on Uniform Control Devices, which clearly defines what these terms mean nationwide and in California for traffic control devices, there is sometimes confusion on the part of the public about whether the similarly worded statements made in the Highway Design Manual are design standards that must be followed. If it is the intent to have the HDM be a state guideline but not a standard document that has to be followed by every jurisdiction, then the use of "shall" statements should be much more restricted, or explained in such as way as how they differ from those of documents like the CA MUTCD.	Comment(s) beyond the scope of this HDM update.	Evaluating the use of the defined/designated words related to "standards" in the HDM versus their use "casually" as "just a choice of wording" will be part of a future HDM update effort.
3E-002	General Comment		One further suggestion we would have is that in the future there be more information on the main Highway Design Manual page about both on-going efforts to update the text as well as links to any pending drafts. The current HDM page has no mention of a major pending draft being available for comments: http://www.dot.ca.gov/hq/oppd/hdm/hdmtoc.htm	Commentary, no response required.	
3E-003	All		All "shall" statements should be closely reviewed and changed to "should" statements where appropriate, with accompanying discusssion of the reasoning for the recommendations so that professional engineering and planning judgement can be applied to individual design contexts.	Comment(s) beyond the scope of this HDM update.	The review suggested is part of a future HDM update.
3E-004	Chapter 300; Index 301.2 (1)		Draft Text on page 198: Class II bikeways (bike lanes), for the preferential use of bicycles, may be established within the roadbed, immediately adjacent to the rightmost lane. Comment: Remove reference to rightmost lane, since this conflicts with later guidance about providing bicycle lanes on either side of a one-way roadway. There are multiple situations where it is preferable to place a bicycle lane not adjacent to rightmost lane.	Comment combined with other comments and resulted in a HDM change.	

3E-005	Chapter 300; Index 301.2 (1)		Draft Text on page 198: Bicycle lanes must not be placed between the parking area and the curb. Comment: This language is inconsistent with emerging best practices, as evidenced by NACTO. Change to: "Bicycle lanes should generally not be placed between the parking area and the curb unless sufficient buffer space is provided to mitigate conflicts between cyclists and people entering or exiting parked vehicles." Supporting Documentation: NACTO Urban Bikeway Design Guide	Comment did not result in a HDM change.	Currently being discussed with the California Bicycle Advisory Committee.
3E-006	Chapter 300; Index 301.2 (2)		Draft Text on page 198: Bike lanes shall not be marked next to curbs where parking is prohibited only during certain hours of the day. Comment: Change "shall" to "should". San Francisco has successfully implemented a "floating" bike lane that exists alongside the curb during off-peak hours, but shifts outside the parking area when parking is allowed. Additionally, in urbanized areas like San Francisco, motorists are accustomed to complying with parking restrictions and parking enforcement is strong. Supporting Documentation: http://www.sfmta.com/cms/uploadedfiles/dpt/bike/report%20on%20floating%20bike%20lane%2012_11_06.pdf	Comment did not result in a HDM change.	Generally speaking, this is not desirable. However, this could be done with a design exception.
3E-007	Chapter 300; Index 303.4 (1)		Draft Text on page 211: Bulbouts are to be paired up at mid-block locations. Comment: Add context as to why bulbouts should be paired, or else rewording as a recommendation rather than a requirement.	Comment combined with other comments and resulted in a HDM change.	
3E-008	Chapter 300; Index 303.4 (1)		Draft Text on page 211: Avoid bulbouts on facilities where highway grade lines exceed 5 percent. Comment: Provide justification for restricting bulb use to grades below 5%, or else remove restriction.	Comment did not result in a HDM change.	ADA issues (accessible routes) arise as do highway profile grade coordination issues. Thus, they are to be "avoided", but they can be used if these issues are able to be resolved at the site of the proposed crossing.
3E-009	Chapter 400; Index 403.7		Draft Text on page 255: A pedestrian refuge area shall be a minimum of 4 feet wide by 6 feet long. Comment: Change "shall" to "should"	Comment combined with other comments and resulted in a HDM change.	
3E-010	Chapter 500; Index 504.2 (6)		Draft Text on page 317: On freeways where bicycle or pedestrian travel is not prohibited, provisions need to be made at interchanges to accommodate bicyclists. Comment: Add "and pedestrians" to end of sentence.	Comment combined with other comments and resulted in a HDM change.	
3E-011	Chapter 1000; Index 1003.1		Draft Text on page 732: and the face that pedestrians do not walk in straight predictable lines Comment: Change to "and the fact that pedestrians do not always walk in straight predictable lines"	Comment combined with other comments and resulted in a HDM change.	
3E-012	Chapter 1000; Index 1003.1		Draft Text on page 732: where the two should be separated wherever possible. Comment: Delete	Comment combined with other comments and resulted in a HDM change.	

3E-013	Chapter 1000; Index 1003.1		Draft Text on page 732: If there is an adjacent pedestrian walkway, the edge of the traveled way of the bicycle path shall be separated from the pedestrian walkway by a minimum width of 5 feet of unpaved material. Comment: Change "shall" to "should." Provide exception for approaches to intersections where it may be beneficial to concentrate pedestrian and bicycle crossings at a single location, as described later on p. 736 - "When crossing an arterial street, the crossing should either occur at the pedestrian crossing, where motorists can be expected to stop, or at a location completely out of the influence of any intersection to permit adequate opportunity for bicyclists to see turning vehicles." Provide exception if there is grade separation between the bicycle path and pedestrian walkway, such as a a grade-separated cycle track. Supporting Documentation: http://nacto.org/cities-for-cycling/design-guide/cycle-tracks/raised-cycle-tracks/	Comment combined with other comments and resulted in a HDM change. Comment did not result in a HDM change.	Currently being discussed with the California Bicycle Advisory Committee.
3E-014	Chapter 1000; Index 1003.1 (5)		Draft Text on page 736: The minimum separation between the edge of pavement of a bicycle path and the edge of pavement or curb of a road or street shall be 10 feet. Comment: The proposed change in minimum separation between path and roadway from 5' to 10' may make constructing paths impossible in many urban contexts. Keep minimum of 5', or change the wording from "shall" to "should" and provide justification for 10' minimum.	Comment combined with other comments and resulted in a HDM change.	
3E-015	Chapter 1000; Index 1003.1 (7)		Draft Text on page 737: “For stopping sight distance, the minimum design speed for bike paths shall be 25 miles per hour except as noted in Table 1003.1” Comment: There does not appear to me any guidance on bicycle path design speeds for criteria other than stopping sight distance. Generally, the discussion of design speeds should be broadened to allow for more flexibility for different contexts. For example, if a path is expected to have many pedestrians, a 25 mph design speed may not be appropriate. The Draft AASHTO Guide for the Development of Bicycle Facilities offer a good example of more specific guidance and recommendations on applying lower design speeds.	Comment did not result in a HDM change.	
3E-016	Chapter 1000 Index 1003.2		Draft Text on page 750: Bicycle lanes shall be provided to the left of right-turn only lanes, as shown in Figure 403.6B for at grade intersections. Comment: Allow exception with traffic signal phasing that separates bicycle through movements from vehicle turning movements.	Comment did not result in a HDM change.	Exceptions are allowed to this mandatory statement, but they need to be documented.
3E-017	Chapter 1000; Index 1003.3		Draft Text on page 750: Class III facilities are shared facilities, either with motor vehicles on the street, or with pedestrians on sidewalks, and in either case bicycle usage is secondary Comment: Delete "and in either case bicycle usage is secondary"	Comment combined with other comments and resulted in a HDM change.	
3E-018	Chapter 1000; Index 1003.3 (2)		Draft Text on page 751: Sidewalks shall not be designated as a Class III bikeway as they are not designed for bicycle travel. Comment: Provide exception when pavement markings or other traffic control devices separate bicycle and pedestrian flow.	Comment combined with other comments and resulted in a HDM change.	

3E-019	Chapter 1000; Index 1003.3 (3)	General	Draft Text on page 751: Comment: Recommend reviewing CVC to ensure consistency. San Francisco has intpreted state law as prohibiting bicycles from operating in transit-only lanes. CVC Section 21655.7 allows local authorities to designate portions of highways for their exclusive use as a "public mass transit guideway." In San Francisco, these areas are established through the San Francisco Transportation Code (SFTC) Division II, Section 601, and no vehicles except transit vehicles, taxicabs, vehicles preparing to make a turn and vehicles moving from a stopped position at the curb are permitted to use them. Exclusive transit areas are usually designated as the far-right lane, where bicyclists are generally required by law to ride (CVC Section 21202). Under local law as written, bicycles could use the transit-only lanes, because the SFTC prohibits "vehicles" from using the transit-only lanes, and bicycles are not classified as "vehicles" under the CVC (Sections 231 and 670); however; San Francisco can only exercise the powers in this area that are delegated to it by the state under CVC Section 21. State law only authorizes use of transit-only lanes for "public mass transit."	Comment combined with other comments and resulted in a HDM change.	
3E-020	Chapter 1000; Index 1003.3 (3)		Draft Text on page 751: Shared Bus and Bikeways. In general, the sharing of bus lanes and bicycles is discouraged. The shared use of BRT lanes and bicycles shall not be allowed. Comment: Delete	Comment did not result in a HDM change.	Wording kept because it is an acurate statement.
3E-021	Chapter 1000; Index 1003.3 (3)		Draft Text on page 751: Bus lanes and bicycles are generally not compatible, and present significant safety risks to bicyclists. Comment: Delete unless there is research to support this statement.	Comment did not result in a HDM change.	Wording kept because it is an acurate statement.

Transportation Authorities, Commissions, Organizations, etc.

Commentor 4E: **Stephen Haas, Project Manager**
Organization: **Alameda County Transportation Commission/ACCMA**

Comment Number	Chapter & Index	Index Title	Comment/Issue	Resolution of Comment/Issue	Commentary, as necessary, on Resolution of Comment/Issue
4E-001	Chapter 60; Index 62.8 (9)		Provides the following definitions: *(b) High Occupancy Toll (HOT) Lanes - An HOV lane that allows vehicles qualified as carpools to use the facility without a fee while vehicles containing less than the required occupants pay a toll. Tolls may change based on real time conditions (dynamic) or according to a schedule (static).* *(c) Express Toll Lanes - Facilities in which all users are required to pay a toll, although HOVs may be offered a discount. Tolls may be dynamic or static.* Comment: I do not believe that this distinction between HOT and Express Lanes is in common usage, in practice it seems that the terms are used interchangeably. Is the distinction really necessary? The "A Guide for HOT Lane Development" referenced in the HDM states "The HOT lanes are limited-access, normally barrier-separated highway lanes that provide free or reduced cost access to qualifying HOVs and also provide access to other paying vehicles not meeting passenger occupancy requirements." Which appears to fit both definitions listed in HDM 62.8 (9).	Comment did not result in a HDM change.	The definitions provided have been jointly developed with the Division of Transportation Operations. They are based upon Transportation Research Board (TRB) reports/publications and are considered to be "Industry Standard".

4E-002	Chapter 300; Index 309.1 (2)		Includes the following text: *Parallel BRT facilities shall have the following minimum separation between lanes* *> Freeways and Expressways* - 4 feet* *> Conventional Highways* *+ Speeds over 45 mph - 4 feet* *+ Speeds greater than 25 mph and 45 mph or less in an urban environemtn - 2 feet,* *with curbed separation, 4 feet with 2-foot curbed separation recommended.* **See "A Guide for HOT Lane Development ", FHWA and Caltrans High Occupancy Vehicle Guidelines for additional information.* Comment: Will this standard be applied to Express/HOT Lanes? While this does not specifically state that a HOT or Express lane separation (buffer) shall be 4', it does reference "A Guide for HOT Lane Development". That Guide states that the standard separation width for a HOT lane is 4', it also seems to indicate that 2' is acceptable in restrictive situations. The 2003 CT HOV Guide states that a 4' buffer is typical, but provides details for both 4' and 2' buffers. I recommend that the HDM provide clarification on this topic or provide a section specific to Express/HOT lanes. For instance, when is a 2' buffer acceptable?	Comment did not result in a HDM change.	Yes, this standard will be applied to Express/HOT lanes. See 5E-001 for additional information.

Commentor 5E:	**Michael Kerns (email dated 7-8-11)**
Organization:	**Metropolitan Transportation Commission**

Comment Number	Chapter & Index	Index Title	Comment/Issue	Resolution of Comment/Issue	Commentary, as necessary, on Resolution of Comment/Issue
5E-001	Chapter 300; Index 309.1	Horizontal Clearances for Highways	Index 309.1 states that parallel BRT facilities shall have a minimum separation of 4 feet for freeways and expressways and indicates that you should see "A Guide for HOT Lane Development", FHWA and Caltrans High Occupancy Vehicle Guidelines for additional information". Based on the references, I assume this requirement could also be applied to HOV and HOT facilities and was curious as to the reason why a 4 foot separation is being required. This seems very conservative and is inconsistent with both the Department's recently approved Traffic Operations Policy Directive for Managed Lane Design and the 2003 High Occupancy Vehicle Guidelines for Planning, Design and Operations. The TOPD currently indicates that the recommended buffer width is 4 feet but that this may be reduced as outlined in Section 3.10 of the HOV Guidelines, which allows a reduction down to 2'. Would the 4 foot buffer requirement preclude HOV and Express Lane facilities from being operated as continuous access facilities as is common for HOV lanes in the Bay area and an option for Express Lanes in the current TOPD?	Comment did not result in a HDM change.	No, the 4 foot buffer requirement will not preclude HOV and Express lane facilities. Project specific details are needed to discuss buffer width in more detail.

Commentor 6E:	**Tilly Chang, Deputy Director for Planning ; submitted by Chester Fung (Senior Transportation Planner)**
Organization:	**San Francisco County Transportation Authority**

Comment Number	Chapter & Index	Index Title	Comment/Issue	Resolution of Comment/Issue	Commentary, as necessary, on Resolution of Comment/Issue
6E-001	Overall		"we strongly support Caltrans' efforts to integrate Complete Streets concepts into highway design and to differentiate highway design requirements according to the surrounding context of each highway corridor. We particularly appreciate the dentification of place types in order to inform appropriate highway design in urban, suburban, and rural environments."	Commentary, no response required.	

6E-002	Overall		"we see several issues that warrant adjustments to the draft HDM. Many of these issues arise because that new recognition of different roadway contexts is not applied consistently for key design topics. In particular, the HDM design topics should more consistently recognize the multimodal needs of Urban Main Streets that we encounter in San Francisco on streets such as Van Ness Avenue (US101), Lombard Street (US101), 19th Avenue (SR-1), and Sloat Boulevard (SR-1). These streets have special needs compared with freeways, expressways, and other conventional highways. Right-of-way is constrained by built-up adjoining development, travel speeds are low, truck traffic is low, pedestrian volumes are high, and transit needs road space for travel and passenger loading. Issue areas in the HDM draft where more flexibility is needed for these Urban Main Streets in lowering minimum requirements without the burden of obtaining approval for design exceptions include: 1. Design speed (Topic 101), which affects minimum sight distance requirements 2. Minimum required travel and turn lane widths (Topics 301, 405) 3. Minimum required clearances and traffic controls for Bus Rapid Transit (Topics 108.4, 309) 4. Minimum required shoulders, which can affect the ability to provide on-street parking and curb bulb-outs (Topics 302, 303.4) 5. Minimum required dimensions for pedestrian refuge islands (Topics 403.7, 405.4)"	Commentary, no response required.	Items 1 through 5 are covered under the responses to specific comments that follow for this commentator.
6E-003	Chapter 62; Index 62.3 and Chapter 80: Index 81.3		**NEED FOR FORMAL DEFINITION OF – AND STANDARDS FOR – NEW "URBAN MAIN STREET" FACILITY TYPE** The HDM defines highway types under two topics: 62.3 (Highway Type) and 81.4 (Highway Type). The types defined are not consistent: 62.3 defines freeways, expressways, conventional highways, and highways (with subtypes including arterial highways, major streets/highways); 81.4 defines principal arterials, minor arterials, and collectors. Also, in 81.3, the HDM describes the context of road facilities by defining place types, including Urban Main Street. Consideration of roadway context is critical to implementing Complete Streets, and we support the discussion here. But the HDM does not go on to utilize the place type designations, even though place types should be considered in setting standards. The HDM design topics provide standards for conventional highways, often stipulating different standards under specific circumstances, such as vehicle speeds, extent of adjoining development, existence of curbed medians, and amount of truck traffic. We support this more nuanced approach to standards-setting, but we recommend that it be applied more consistently by first defining the Urban Main Street facility type in 62.3 and 81.4, and then defining full sets of relevant standards for it where relevant.	Commentary, no response required.	
6E-004	Chapter 80; Index 81.2		**EXISTING DEVIATIONS FROM STANDARDS** Topic 81.2 stipulates that projects that do not upgrade existing non-standard features must undergo the design exception process. Where existing conditions are constrained by existing development, there is a particular need for design and operational flexibility in order to strengthen bicycle, pedestrian and transit networks while accommodating safe circulation for all road users. For example, the current requirement for proposed improvements to obtain design exceptions for existing substandard elements, even if the proposed improvements are not materially related to those elements, is onerous and often in conflict with Complete Streets objectives. > Index 82.1: Remove the requirement to justify existing conditions in a design exception process, if those non-standard elements are not materially related to the project.	Comment did not result in a HDM change.	This is the Department's way of recording the engineering decision(s) made by the Engineer in responsible charge.

6E-005			**DESIGN SPEED** Topic 101.1 stipulates observed speed as the main consideration for selecting design speed. Topic 101.2 stipulates design speed for the conventional highways 'urban arterial with extensive development' subtype to be 30-40 mph. Relying on motor vehicle speeds to guide design standards over-emphasizes motorists over other road users, which runs counter to the aim of the Complete Streets policy. Currently, the draft HDM specifies that observed speed is the primary guiding factor for setting a facility's design speed. The HDM should instead refer to the place-type context and multimodal needs as the primary design speed factors. Collision research has shown that the differences in pedestrian fatality and major injury rates for collisions with vehicles traveling below 30 mph are dramatically lower than above 30 mph. In urban environments with extensive development, significant pedestrian volumes are present, and designing for vehicle speeds under 30 mph is essential to discourage drivers from speeding and improving safety for non-motorized users, the most vulnerable mode. To provide the flexibility to design streets that maximize the safety of vulnerable road users and are most appropriate for the local context, we recommend the following revisions: > 101.1: Revise the text to state that place-type considerations and multimodal needs are the primary factors for selecting design speed. > 101.2: Set the design speed range for Urban Main Streets at 25 to 40 mph.	Comment combined with other comments and resulted in a HDM change.	
6E-006			**LANE WIDTH** Topic 301.1 stipulates minimum lane width for conventional highways less than 40 mph and with daily truck volume less than 250 per lane to be 11 feet. Topic 405.2 stipulates minimum left-turn lane width in urban areas with posted speeds less than 40 mph where large trucks are not expected to be 11 feet. Topic 405.3 stipulates minimum right-turn lane width of 10 feet only with approval of design exception. The proposed minimum lane width reduction from 12 to 11 feet for slow-speed urban streets is a step forward. However, we strongly recommend further reducing the mandatory minimum lane width for slow-speed urban streets, including and especially turn lanes, to 10 feet. There are no documented traffic safety benefits of lanes wider than 10 feet in a slow-speed context. The reduced pedestrian crossing distances afforded by narrower lanes measurably increase pedestrian safety, and widening lanes in constrained urban environments has significant negative impacts on pedestrians and adjacent land uses. We recommend the following revision: > 301.1: Set the minimum required lane width on Urban Main Streets at 10 feet. > 405.2: Set the minimum required left turn lane width on Urban Main Streets to 10 feet. > 405.3: Set the minimum right turn lane width on Urban Main Streets to 10 feet.	Comment did not result in a HDM change.	10 foot lanes are not acceptable for state highways because even though they may be in varying contexts, they are still interregional facilities and need to accommodate larger vehicles and trucks.
6E-007			**SHOULDER WIDTHS** Topic 302.1 stipulates shoulder widths for conventional highways, multi-lane divided, in urban areas with speeds less than or equal to 45 mph and curbed medians, to be 2 feet for the left (which can be omitted if speed is less than 35 mph) and 8 feet for the right. When parking is provided, it stipulates a 12- or 13-foot shoulder. Topic 405.3 stipulates minimum shoulder width on right turn lanes to be 4 feet (5 feet if curb and gutter are present). In corridors such as those in San Francisco, shoulders are unnecessary because of the short distance between cross streets; vehicles encountering break-downs can easily find a cross street onto which they can turn. Also, too wide a shoulder encourages unsafe speeds for vehicles in the right-most lane. We recommend the following revisions: > 302.1: Eliminate shoulder width requirements for Urban Main Streets, including the requirement for a shoulder that includes parking or bus stops. > 405.3: Eliminate the shoulder width requirement for right turn lanes on Urban Main Streets.	Comment combined with other comments and resulted in a HDM change.	

6E-008			**CURB BULBS** Topic 303.4 describes bulb-outs, including for pedestrians and buses, and includes a design specification. We applaud the new curb bulb-out design specification with a minimum 2-foot setback from the adjacent traffic lane. Still, we are concerned that the minimum shoulder width requirements elsewhere in the HDM do not explicitly allow for reductions to accommodate curb bulb-outs. Curb bulb-outs should not require design exceptions to the minimum shoulder width. We also suggest explicitly recognizing that the design guidelines proposed for pedestrian curb bulbs also apply to bus bulbs. Finally, it is unclear whether the HDM requires use of a particular vehicle turning template in designing curb bulbs. Such a requirement would defeat the purpose of a curb bulb in terms of pedestrian safety and therefore should only be made if the intersection experiences significant truck or bus traffic. We recommend the following revisions: > 302.1 and 303.4: Eliminate the shoulder width requirement for Urban Main Streets, and explicitly exempt pedestrian and bus bulb-outs from minimum shoulder width requirements. Clarify that bus and truck turning requirements only apply if significant bus or truck traffic is present.	Comment combined with other comments and resulted in a HDM change.	
6E-009			**BUS RAPID TRANSIT (BRT) TRAFFIC CONTROLS AND HORIZONTAL CLEARANCE** Topic 108.4 stipulates that BRT be considered similar to commuter and light rail in terms of geometric design and traffic control requirements. Topic 309.1 stipulates that, on conventional highways, parallel BRT facilities require separation of 2 feet with curb for speeds 25-45 mph. One of the defining attributes and strengths of BRT is its flexibility to operate within the existing transportation network similar to other motor vehicles. The HDM should set forth similar BRT design guidelines and standards to other motor vehicles, accordingly. Specifically, we do not support the proposed horizontal clearance, curb requirements between BRT lanes and general traffic lanes. Particularly where traffic speeds are less than 45 mph, there is no evidence that the safety hazard posed to adjacent traffic by a BRT lane is significantly different than buses traveling in mixed-flow traffic. Requiring physical separation between BRT lanes and adjacent travel lanes reduces the feasibility of implementing BRT on constrained corridors in urban settings, where transit improvements are most needed. If implemented, the physical separation would require narrower travel lanes, reduced median width, elimination of curb parking, reduced sidewalk width, or other unacceptable compromises. The physical separation would also reduce pedestrian safety by lengthening crossing distances while providing no demonstrable safety benefit. We also do not support treating BRT similarly to commuter or light rail with respect to traffic control. We recommend the following revision: > 309.1: Eliminate the minimum separation requirement for Urban Main Streets. > 108.4: Eliminate the requirement for BRT facilities on conventional highways to follow guidance for light rail facilities.	Comment did not result in a HDM change.	Approvals and design guidance are similar. However, design standards are not. Dedicated full-time BRT lanes should have this minimum separation.

6E-010			**PEDESTRIAN REFUGE ISLANDS** Topic 403.7 stipulates the minimum requirement for pedestrian refuge areas to be 4 feet wide by 6 feet long. Topic 405.4 stipulates minimum width for pedestrian refuge traffic islands to be 6 feet. We support the recommendation to include pedestrian refuge islands to facilitate safe crossings of wide streets. While 6 feet should be both the mandatory minimum width of an island on a highspeed highway and the recommended minimum island width on all streets, we recommend reducing the mandatory minimum width to 5 feet for pedestrian islands streets with low traffic speeds, where such widths are an existing condition in a constrained urban environment. Five feet provides adequate space for a pedestrian to wait to finish crossing the street, and a pedestrian injury resulting from vehicles leaving the adjacent travel lanes is minimal if traffic moves slowly. The proposed minimum requirement will effectively prohibit inclusion of smaller but still adequate refuges at intersections where a 6 foot refuge is not feasible, thereby reducing overall pedestrian safety. We specifically recommend revising the following: > 403.7: Clarify which direction constitutes length vs. width. We assume the language intended is for 6 feet minimum width. > 403.7 and 405.4: Provide that a median with a pedestrian refuge may be reduced to a minimum width of 5 feet on streets with posted speeds below 35 mph, where such dimensions are an existing condition in a constrained urban environment. Recommend that a minimum 6 foot wide refuge be provided where feasible. Also, Figure 405.4 is an aerial photo of an intersection with islands, some of which do not appear in compliance with the standard. Please provide a suitable specification for traffic island designs.	Comment combined with other comments and resulted in a HDM change.	
6E-011			**PROHIBITED PEDESTRIAN CROSSINGS** Topic 403.11 describes the permissibility of prohibiting pedestrian crossings if a reasonable alternative route exists. While there are circumstances in which prohibiting pedestrians from crossing one or more legs of an intersection may be necessary for safety reasons, the HDM should discourage such restrictions otherwise. Limiting pedestrian crossing opportunities increases walking distance and time, physical effort, and intersection delay. It may reduce pedestrian safety by increasing the likelihood of illegal crossings and increasing traffic exposure if pedestrians must cross multiple intersection legs to detour around the prohibited crossing. We recommend the following revision: > 403.11: Change this section to read “Pedestrians can be prohibited from crossing one of more legs of an intersection if permitting the crossing would create a safety hazard and a reasonable alternative route exists that increases safety for pedestrians and other road users. The alternative route should not significantly increase pedestrians’ walking distance or delay at the intersection.”	Comment combined with other comments and resulted in a HDM change.	
6E-012			**MEDIAN TREE PLANTINGS** Topic 902.3 (4) stipulates minimum horizontal clearance for median tree plantings to be 5 feet from face of curb for conventional highways with speeds less than 35 mph, and 100 feet from the longitudinal end of the median. This standard effectively prevents median tree plantings for any median less than 12 feet wide. The reason for the standard is not clear, especially since the standard clearance to the right of the roadside is 1 ½ feet. And in San Francisco, where block lengths are short, requiring trees to be at least 100 ft from either end of a median is overly restrictive. We recommend the following revision: • 902.3: Change the planting condition from 5 feet to 1 ½ feet from face of curb, and change the longitudinal end requirement from 100 feet to 20 feet.	Comment did not result in a HDM change.	Departmental design guidance on tree plantings were recently updated based upon research and professional judgement.

6E-013			**ADDITIONAL COMMENTS** The following are two additional technical comments: • 62.10: The definition of bus rapid transit should be changed to reflect the FTA definition: “BRT is an enhanced bus system that operates on bus lanes or other transitways in order to combine the flexibility of buses with the efficiency of rail. By doing so, BRT operates at faster speeds, provides greater service reliability and increased customer convenience. It also utilizes a combination of advanced technologies, infrastructure and operational investments that provide significantly better service than traditional bus service.” • 403.6: We support the addition of bicycle lane configurations to intersection designs. However, the text stating that optional right turn lanes shall not be used where speeds exceed 35 mph contradicts the text in Figure 403.6B, Note 3, which prohibits their use where speeds exceed 30 mph. The section text should be revised to limit optional right turn lane use to streets with maximum 30 mph speeds in order to maximize bicycle safety.	Comment combined with other comments and resulted in a HDM change.	
Commentor 7E:	**Robert Swierk and Michelle DeRobertis**				
Organization:	**Santa Clata Valley Transportation Authority**				
Comment Number	**Chapter & Index**	**Index Title**	**Comment/Issue**	**Resolution of Comment/Issue**	**Commentary, as necessary, on Resolution of Comment/Issue**
7E-001			We are very pleased that the L-9 interchange default configuration has been modified; that there is now the possibility for 11 foot lanes on state highways without a design exception; and that the advisory standard for minimum sidewalk width has been increased significantly. We offer the following comments primarily related to local facilities in Caltrans Right of Way (ROW), bikeways, and lane widths and design speeds on state facilities.	Commentary, no response required.	
7E-002			**1. <u>Standards that apply to Local Agencies</u>** The Foreword (Purpose) states that "*This manual was prepared for the California Department of Transportation (Department) by yhe Division of Design for use on the California State highway system . . . . External agencies may chose to use or adopt this manual for their own purposes. If their choice is not to use or adopt this manual, they must still comply with the requirements of Sections 890- and 891 of the California Streets and Highway Code.* And Topic 115 elaborates: "*All cities, counties, regional and other local agencies responsible for bikeways or roads where bicycle travel is permitted shall follow the minimum bicycle design criteria contained in this and other chapters of this manual (see Streets and Highways Code Section 891).* It is occassionally unclear when a standard or guidance is intended only for the Department or whether it is intended for both the Department and external agencies. There are some gray areas such as bus lanes and bicycles. We suggest that all mandatory and advisory standards that also apply to external agencies per SHC 890-891 be indicated in the text as well as in Table 82.1A.	Comment did not result in a HDM change.	California SHC Sections 890 and 891 cover bicycle design guidance, signing and striping. It does not require that the whole of the manual be adopted by external agencies.

7E-003			**2. <u>Place Types and Design Standards</u>** VTA is pleased to see that the concept of "place types" has been introduced (Sections 81.2/81.3), and that the Manual provides a certain degree of differentiation of highway design requirements relative to the context of the facility. However, design standards are still largely driven by functional cl;assification, and as such do not differ with place type, or setting. Thus, the recognized need for increased design flexibility to accommodate local needs and preferences is not reflected in the standrads, which still remain largely uniform for all conditions. This could be improved through identification of standrads appropriate to specific place types. We would like to see these place types carried throughout the manual in the test and tables when presenting design standards. We think there should be a distinction between conventional highways and situations where there is development, fronting land uses, pedestrians, bicycles and/or frequent transit service, i.e., for urban arterial streets and rural main streets. Moreover, we request that there be specific design criteria for Urban Arterial Streets so that the following design features can be incorporated without design exceptions: > Design speed as low as 25 mph > Through lane widths of 10 -11 feet > Turning lane widths of 10 - 11 feet > Bulb-outs with no shoulder > Shoulder width > Left side shoulders (against median of 0 feet > Bike lane widths serve as right-side shoulder, i.e. 5 feet minimum, 6 - 8 feet preferred without parking > Midblock Pedestrian Refuges > Curb radaii of 15 - 25 feet > Bus Rapid Transit (BRT) design features, including median BRT stations, bulb-out BRT stations, and bus-only lanes with no additional clearance requirements between lanes than for regular transit	Commentary, no response required.	The resolution of some of the issues listed have been resolved through the resolution of other comments that were received. However, the Department's way of recording the engineering decision(s) made by the Engineer in responsible charge is through the design exception process and it can not be eliminated.
7E-004			**3. <u>Lane widths on Local Facilities in State ROW</u>** a. **Local roads with no connections to State facilities:** Local agencies should have the discretion to set lanes widths for both travel lanes and turn lanes per AASHTO: Section 308.1 and 403 should specifically state that the local agencies should determine travel lane widths and turn lane widths per AASHTO standards. b. **Local roads in urbanized areas with connections to State facilities:** Local agencies should have discretion to decide the goemetry of the streets without obtaining design exceptions. For example, local agencies should be allowed to decide on the minimum lane width of 10 feet lanes for both travel and turn lanes, particularly when it comes to matching an existing local facility on either side of the interchange.	Comment combined with other comments and resulted in a HDM change.	
7E-005			**4. <u>Lane widths on State Highways</u>** Sections 301.1, 404.2, and 405.3 should be modified as suggested below: a. Travel lanes - In Section 301.1 for 11 foot lanes we would like to see "less than or equal to 40 mph" be increased to "less than or equal to 45 mph". b. Turn lanes - In 405.2 of the existing HDM, 10 feet width is specifically called out as an option for left turn lanes. We would like this option to be retained and also made possible for right-turn lanes in section 405.3.	Comment combined with other comments and resulted in a HDM change.	

7E-006			**5. <u>Bus Rapid Transit (BRT)</u>** a. **Approvals and Design Guidance:** Section 108.4 states that "For the prupose of design and coordination, Bus Rapid Transit (BRT) is to be considered the same as commuter and light rail facilities with regards to approvals and design guidance" and "BRT facilities located on conventional highways and expressways should follow, as appropriate, the guidance for traffic control in the California MUTCD for light rail facilities." It is problematic to treat BRT as light rail, as BRT systems are meant to be more flexible than light rail systems. While rail cars can only operate in fixed guideways, BRT vehicles do not have this restriction. For instance, BRT vehicles may travel in a bus-only lane serving median stations for a portion of their route and may travel in general purpose lanes to bypass a stalled vehicle or to serve a bulbout station on the outside lane at other times. Relying on the same design guidance as for light rail systems and introducing separation and protection requirements reduces that flexibility and is unnecessary for safety or operations. b. **Horizontal Clearance and Lane Separation:** Section 309.1 (2) establishes standards that require a minimum separation between lanes for parallel BRT facilities. Clarification is needed whether this is between opposing BRT lanes, or between the BRT and mixed flow lanes. the rquirements for separation of parallel BRT facilities are oneous, and will preclude BRT in most in-street applications. There is no justification for requiring separation of buses from mixed-flow traffic when they are in the same direction and at similar speeds. Use of curb separation restricts access for buses and emergency vehicles that are typically permitted access, will require additional busway widths to allow passing of a stalled vehicle, and will introduce drainage issues. There is no support for this separation in the current literature, such as the AASHTO Geometric Guide for Transit Facilities on Highways and Streets, or the many TCRP publications on BRT. These separation requirements should be eliminated. Clarification should be added to distinquish general design requirements for BRT in urban arterial settings versus other settings such as freeway High Occupancy Vehicle (HOV) lanes.	Comment combined with other comments and resulted in a HDM change.	Approvals and design guidance are similar. However, design standards are not. Dedicated full-time BRT lanes should have this minimum separation.
7E-007			**6. <u>Design Speed</u>** Design speed is a crucial element of transportation facilities, and we feel that this area did not receive as thorough a review with respect to complete streets revisions as it deserves. Our concerns are in three main areas: a. The beginning of Sections 101.1 presents a discussion of the differnt factors that should be considered in selecting a highway design speed, which includes many context-sensitive elements. However, the 6th paragraph of this section then includes a sentence: "Subject to the above considerations, **as high a design speed as feasible** should be used particularly on high-speed facilities."-This largely ignores the distinctions discussed earlier in this section. This sentence should be revised to support use of low design speeds in low-speed environments such as urban streets and Rural Main Streets. b. Table 101.2 has unrealistically high design speeds for some conditions. Table 101.2 should be consistent with the complete streets goals of differentiating between place types as follows: > Add **Rural Main Street** to the options- 25 mph-30 mph. > All **Urban Arterial Streets** should be assumed to have extensive development, with a design speed of 30-40 mph; Delete option for Urban Arterial Streets to have a design speed of 40-60 mph. > Reduce design speed for **Rural Highways in Rolling Terrain** to a minimum of 35-50 (from 50-60 mph). > Reduce design speed for **Rural Highways In Mountainous Terrain** to a minimum of 25-40 mph (from40-50 mph). c. The design speed of turns as urban intersections and at ramp terminals in urban areas should be specified to be a maximum of 15 mph throughout the manual.	Comment did not result in a HDM change.	Table 101.2 for Vehicular Design Speed has been modified but not exactly as requested in comments.
	Please see File 7E to view comments received on Draft Pages of HDM and their resolution.				

Commentor 8E:	**Daryl Halls, Executive Director; submitted by Robert Guerrero (Senior Planner)**				
Organization:	**Solano County Transportation Authority & Bay Area Congestion Management Agencies**				
Comment Number	**Chapter & Index**	**Index Title**	**Comment/Issue**	**Resolution of Comment/Issue**	**Commentary, as necessary, on Resolution of Comment/Issue**
8E-001	Overall		It is great to see "Complete Streets" implementation coming into fruition. Integration into the HDM is a significant milestone. . . . support . . . the Complete Streets program and Caltrans' effort to update the HDM accordingly. We are hopeful that Caltrans will continue to integrate the Complete Streets, Bus Rapid Transit, and other policy directives into a comprehensive program that integrtaes all modes of travel into the Statefacilities in our jurisdictions. This task will be challenging, as it requires trade-offs in many situations. The inclusion of place type definitions in the HDM is a good start, as it helps guisde the typre of Complete Street standards to be applied; however, the current effort appears to be incomplete. Inplementing Complete Streets concepts on our urban conventional highways in particular will require close State and local patnerships. We offer the following main comments toward this end:	Commentary, no response required.	
8E-002			1. **The HDM should formally define new state route facility types in the following place-type contexts:** > **Urban Main Street**, such as US 101/Van Ness Avenue in San Francisco > **Rural Main Street**, such as SR-113 through Dixon or SR-4 through Brentwood As illustrated by these examples, the State facilities in the Bay Area that are conventional highways represent a range of situations, including rural town centers and denser urban environments. These street typically feature extensive adjoining development and must respond to diverse multimodal needs, including those of pedestrians, bicyclists, motorists and transit riders. Currently, modification of these types of streets requires extensive and onerous design exception processes. The HDM should facilitate Complete Streets designs on these streets by setting design guidelines that are appropriate for 'main street' contexts, which would obviate the need for extensive design exceptions for deviations from conventional highway standards. We recommend that these new facility types be formally defined and consistently addressed in the HDM accross all topic areas (see paragraph 2 below). For these streets, which typically experience low truck traffic, lower vehicle design speeds, and related design standards, are generally appropriate.	Commentary, no response required.	This change effort is intending to accomplish what is recommended.
8E-003			2. **The HDM should provide context-sensitive and consistent guidelines and standards across all relavant topic areas for the new 'main street' facility types.** The Draft HDM revisions reflect several inconsistencies and an incomplete effort to facilitate context-sensitive designs. For example, the HDM starts to identifiy several place types at the beginning of the docuement, but does not go on to utilize these place types in the design guidelines or standards. In addition, the draft HDM design topics address the varying contexts of State facilities by providing different standards under specific circumstances, such as vehicle speed, amount of truck traffic, existence of a curbed media, and existence of adjoining development. We applaud the more nuanced approach, but recommend that it be applied more consistently by first defining the facility types described above and then defining full sets of relevent standards for each. Design standards that should be covered for the new facility types include those for design speed (Topic 101), lane widths (Topic 301.1), shoulder requirements (Topic 302), horizontal clearances, transit facilities (Topic 108), and intersection and design vehilce requirements (Topic 400).	Commentary, no response required.	It was decided to incorporate the standard discussions within the existing frame work of the HDM rather than create a new concept and use "full sets" of standards for "facility types" as others have done.
8E-004			3. **The new 'main streets' facility types should be based on lower design speeds reflecting the place-type characteristics and multimodal needs of such facilities, rather than observed motor vehicle speed (Topic 101).** Relying on motor vehicle speeds to guide design standards over-emphasizes motorists over other road user, which runs counter to the aim of the Complete Streets policy. Currently, the draft HDM specifies that observed speed is the primary guiding factor for setting a facility's design speed. The HDM should instead refer to the place-type context and multimodal needs as the primary design speed factors, and Table 102.1 should be revised to provide design speed ranges for the new facility types, with sufficient flexibility to use 25 mph design speeds for appropriate circumstances.	Comment(s) beyond the scope of this HDM update.	Design speed for this place type needs to be studied further. Also see Comment 6E-05 response.

8E-005			4. **The HDM should treat Bus Rapid Transit differently than commuter or ligh rail.** The draft HDM specifically notes similar guidance on geometric design and traffic control for Bus Rapid Transit (BRT) and commuter and light rail facilities (Topics 108.4, 309.1), when, in fact, one of the defining attributes and strengths of BRT is its flexibility to operate within the existing transportation network similar to other motor vehicles. The HDM should set forth similar BRT design guidelines and standards to other motor vehicles, accordingly. We look forward to working with the Department to evovle BRT standards as more projects are implemented across the Bay Area.	Comment(s) beyond the scope of this HDM update.	The Department currently has a Team underway to further develop design guidance related to BRT on the State highway system.
8E-006			5. **The HDM should help - not hinder - local jurisdictions in the effort to implement Complete Streets.** Where existing conditions are constrained by existing development, there is a particular need for design and operational flexibility in order to strengthen bicycle, pedestrian and transit networks while accommodating safe circulation for all road users. For example, the current requirement for proposed improvements to obtain design exceptions for existing substandard elements, is onerous and often in conflict with Complete Streets objectives. We propose that the HDM explicitly remove the requirment to justify existing conditions under Topic 82.1.	Comment did not result in a HDM change.	The Department's way of recording the engineering decision(s) made by the Engineer in responsible charge is through the design exception process and it can not be eliminated.
8E-007			6. **Finally, we urge Caltrans to support using an alternative Level of Service (LOS) metrics to vehicle delay for traffic impact analysis purposes.** This action would emulate the same change that the California Office of Policy and reseaerch (OPR) recently made to its CEQA Guidelines Appendix G Checklist. In doing so, OPR was guided by SB 375, which calls for a new approach to planning and design, in light of the climate imperative and the need to accommodate our region's housing need. An operational standard that measures motorist, transit rider and bicycle, and pedestrian quality of service, such as described in the 2010 Highway Capacity Manual, may be more applicable for certain place types than traditional automobile volume-to-capacity ratios. The HDM should allow the new facility types to use alternative Level of Service standards and Caltrans staff should be flexibile in allowing local jurisdictions to use such standards on State highways if they are also used by the jurisdiction on other roadways or featured in their Congestion Management Programs.	Comment did not result in a HDM change.	On a project-by-project basis, the LOS is determined by District Planning and/or Traffic Operations. The Project Development Team forum that should be used by the local jurisdiction and the departement to discuss the LOS that is ultimately chosen to be used.
Commentor 9E:	**Lynne March, Transportation Planner**				
Organization:	**Sonoma County Transportation Authority and Regional Climate Protection Authority**				
Comment Number	**Chapter & Index**	**Index Title**	**Comment/Issue**	**Resolution of Comment/Issue**	**Commentary, as necessary, on Resolution of Comment/Issue**
9E-001	General		These comments range from the corrective to the philosophical to being content substantive. I did not read every word of the document, but when I noted a typo or need for clarification I thought why not pass on the benefit of my observation. I hope my comments will be received in the spirit in which they are given—to improve this important and much used guidance document. Thank you for your work, and the opportunity to comment.	Commentary, no response required.	
9E-002	Overall		The concept a “Sidewalk Zone System” (Pedestrian Corridor) is recommended to be integrated into various sections of the HDM when sidewalks are being discussed. Adding a diagram of the 4 zones (curb, furniture, barrier-free pedestrian, and frontage) will be useful in illustrating this concept that is of significance to realizing the full promise of “Complete Streets.” Please see write-up and figure 4-4 at: www.fhwa.dot.gov/environment/sidewalk2/sidewalks204.htm	Comment did not result in a HDM change.	This information/concept is discussed in a yet to be published update to the "Main Streets" document published by the Department.
9E-003	Overall		Grammar: Throughout the document, the word “that” should be used in place of most of the words “which.” “Which” is a pronoun used to introduce a non-essential clause. “Which,” as thus used, is followed by a comma, whereas “that” is not because it introduces an essential clause. Therefore, depending on whether the clause is essential or non-essential it is recommended that either “that” without a comma be used; or “which” with a preceding comma.	Commentary, no response required.	
9E-004	Overall		Grammar: The U.S. convention regarding the placement of commas is: Example, The man said “Oh boy.” Or the man said “Oh boy,” then took off his hat --- specifically not (“, or “.).	Commentary, no response required.	
9E-005	Overall		Grammar: Words are capitalized or not capitalized somewhat randomly in the document. For example, sometimes Caltrans is stated as the Department, other times as the department. Other examples of words that are not proper nouns but that have been capitalized: Transit Operators, Right Turn Only lanes, Transportation Planners, Local Agency.	Commentary, no response required.	
9E-006	Overall		Streamlining: Many words “the” could be deleted, as many are superfluous.	Commentary, no response required.	

9E-007	Overall		Consistent form: Inconsistency is noted in the treatment of numerical values. Some have commas, others not. Is it 1,000 or 1000? For example, why is it 1,500 feet but 1500 cars?	Commentary, no response required.	
9E-008	Overall		Clarity of meaning: It is recommended that acronyms be spelled out upon first reference in each chapter.	Commentary, no response required.	
9E-009	Overall		Clarification: In several places, the document states that a communication needs to be “in writing.” This should be clarified as including or excluding the variety of “in writing” modes, for example, email, Twitter, Facebook, etc. If the particular circumstance requires a hard copy, then “letter” should be specified.	Commentary, no response required.	
9E-010	Overall		Sensitivity: Throughout the document, “people first” language should be used. Examples include those references to “physically disabled persons” and “physically disabled” in Chapter 100 (pages 94, 95, & 96). Additionally, placing all “disabled” or “physically disabled” people into a group is not descriptive of the needs being addressed. A person with impairment to upper limbs, for example, may have needs quite distinct from a person with impairment to lower limbs. A person with diminished hearing, a person with diminished or no visual acuity, a person who uses a walker, a person who uses a wheelchair, a person with cognitive challenges, and a person who is using crutches will have distinct and diverse needs. The examples of variation are too numerous to cite. This is likewise true for “elderly,” “senior” and “older.” Seniors are not uniform in their physical or cognitive capabilities, needs, mobility, or means—so why are they and “disabled” so frequently grouped as it they are. It is suggested that specific needs be addressed, without the overlay of prejudice that strips away people’s individuality.	Commentary, no response required.	
9E-011	Foreword		page 41, Form, line #4: Recommend adding “are” before the word “made.”	Comment combined with other comments and resulted in a HDM change.	The word "and" was added.
9E-012	Foreword		page 41, Organization of the Manual: “A decimal numbering system is used which permits identification …” is the first example of the first topic described under Overall Comments above.	Commentary, no response required.	
9E-013	Foreword		page 41, Use of the English…Manual: The first sentence reads “This Sixth Edition… is in U.S. Customary … units.” Suggested stating that the manual uses versus is in.	Commentary, no response required.	
9E-014	Chapter 10; Index 11.1	Organization	page 45, The Division … (DOD), a part of Project Delivery” should be followed by a comma.	Comment resulted in a HDM change.	
9E-015	Chapter 20; Index 21.2	Sign Route Numbers	page 48, (1): Heading is “Interstate and Defense Highways,” but the text does not make clear whether these are one and the same. Only the Interstate System is referenced.	Comment resulted in a HDM change.	
9E-016	Chapter 20		page 48, column 2 references TSIP as both Transportation System Information Program and Transportation Systems Information Program. Correct.	Comment resulted in a HDM change.	
9E-017	Chapter 20		page 50, (4): Has an extra quotation mark before Business Route.	Comment resulted in a HDM change.	
9E-018	Chapter 40; Topic 41	Enabling Legislation	page 51, It seems there should be mention of the means by which extensions can be (and have been) granted following “the six year term of the act.”	Commentary, no response required.	A summary of the legislation is only being provided in the HDM.
9E-019	Chapter 40; Topic 43.2		page 51, It is not made clear what the acronym PID stands for. It is made clear on page 80-75.	Comment resulted in a HDM change.	
9E-020	Chapter 60; Topic 61	Abbreviations	Page 60-54, Is SHOPP a “plan” or a “program”?	Comment did not result in a HDM change.	It is a “plan”.
9E-021	Chapter 60; Topic 62	Definitions	Page 60-54, Bike Path: Suggest that the use is by bicyclists versus bicycles. Also, some paths permit other users, such as equestrians.	Comment combined with other comments and resulted in a HDM change.	
9E-022	Chapter 60; Topic 62	Definitions	Page 60-55, Sidewalk: Is public use and being contiguous to a street really necessary for the definition? Are ‘sidewalks,” for example in park away from a street, or in a private subdivision, not sidewalks? Likewise for “street.” Are there not private streets?	Comment did not result in a HDM change.	Sidewalks are being defined as used within the State highway right of way.
9E-023	Chapter 60; Topic 62	Definitions	Page 60-55, Traveled Way: This seems to imply that bicyclists would be prohibited in the traveled way – hence no shared use. Is this intended? Likewise is a “Parkway” equally restrictive?	Comment combined with other comments and resulted in a HDM change.	
9E-024	Chapter 60; Topic 62	Definitions	Page 60-58, Toll Road, Bridge or Tunnel: The definition is not technically correct. For example, if a child born in San Francisco decides to relocate to British Columbia when he turns 18, he well might legally cross over the entrance to the San Francisco Bay via the Golden Gate Bridge without paying a dime.	Comment did not result in a HDM change.	
9E-025			Page 60-58, column 1, (7) (b): It seems “no outlet” has largely replaced “dead end” – perhaps add “no outlet” here?	Comment combined with other comments and resulted in a HDM change.	

9E-026			Continuing, re Definitions section: It is recommended that additional definitions be added that relate to Complete Streets concepts. Examples include, “Main Street,” “Boulevard,” “Sidewalk Zone System,” “Road Diet,” etc. This whole Definitions section seems skewed to the vehicular mode.	Comment combined with other comments and resulted in a HDM change.	
9E-027	Chapter 60		Page 60, (7), line 5: Correct “mange” to “manage.”	Comment resulted in a HDM change.	
9E-028	Chapter 60		Page 61, (9), line 3: Change “safely exist the highway” to “safely exit the highway.”	Comment resulted in a HDM change.	
9E-029	Chapter 60		Page 66, Level of Service: LOS is not exclusive to the vehicular mode.	Comment resulted in a HDM change.	
9E-030	Chapter 60		Page 66, (9) Managed Lanes, HOV: Suggest a rewording, as the occupants are not minimum, rather the number of them is. For example: “An exclusive lane for carpools and vehicles carrying at least the minimum number of occupants as posted, and during posted times (either full time or part time).	Comment combined with other comments and resulted in a HDM change.	
9E-031	Chapter 60; Index 62.10	Users	Page 68: A reworking of this section is recommended, involving a rethinking in terms of customer service interface. A Bicycle, Bus; Light Rail and Transit are not “users.” Rather there are bicyclists, bus riders, train riders, bus operators, motorists, pedestrians,	Comment combined with other comments and resulted in a HDM change.	
9E-032	Chapter 60; Index 62.10	Users	Page 68: According to the definition of bicycle, a canoe could be a bicycle. A Frisbee? An arrow? Recommend a more descriptive definition – perhaps including a reference to non-motorized and motorize types.	Comment combined with other comments and resulted in a HDM change.	
9E-033	Chapter 60; Index 62.10	Users	Page 68: The definition of bus is “Any bus…” A form using the word being defined in the definition is improper.	Comment resulted in a HDM change.	
9E-034	Chapter 60; Index 62.10	Users	Page 68, BRT: Correct to Intelligent Transportation Systems.	Comment did not result in a HDM change.	BRT is the correct state-of-the-practice terminology.
9E-035	Chapter 80; Index 81.1		Page 80-70, It is recommended that sustainability be considered in any infrastructure investment. Capacity enhancing projects should be subjected to particular scrutiny.	Comment combined with other comments and resulted in a HDM change.	
9E-036	Chapter 80; Index 81.1		It is recommended that natural resources be replaced with natural systems or just the environment. Natural resources frames nature into something that has commodity value - something just there as a resource to be expended now or later. Common usage is recognized, however, mental shifts are prompted by language, thus consideration of this terminology alteration is suggested for this well-read document.	Comment combined with other comments and resulted in a HDM change.	
9E-037	Chapter 80; Index 81.1		Page 80-70, It is recommended that global interests be included, as California transportation has huge global impacts --- i.e., negative externalities on the rest of the USA and world.	Comment resulted in a HDM change.	
9E-038	Chapter 80; Index 81.2	Highway Context	Page 80-71, , column 1, last line. The goal is not intended to garner compliments; rather the intended word may be complementary?	Comment resulted in a HDM change.	
9E-039	Chapter 80		Page 72, (a) Natural Corridor. Re “significant development,” I suspect many a farmer or vineyard owner would regard their type of development as significant. Perhaps change to something that describes building density.	Comment combined with other comments and resulted in a HDM change.	
9E-040	Chapter 80		Page 72 (2) Suburban Areas third line reads “A mixture of mixture…”	Comment resulted in a HDM change.	
9E-041	Chapter 80		Page 72: Font size is not consistent.	Comment resulted in a HDM change.	
9E-042	Chapter 100; Topic 101; Index 101.1	Design Speed	Page 100-86, paragraph 2: The following sentence seems to contain a contradiction: “Generally the posted speed is a reliable indicator of operating speed although operating speeds frequently exceed posted speeds” One must ask how reliable can anything be if there are frequent deviations?	Commentary, no response required.	
9E-043	Chapter 100; Topic 105		Page 92, last line: Correct “Not” to “Note.”	Comment resulted in a HDM change.	
9E-044	Chapter 100		Page 100-94, The term “accident” is used, whereas about 15 years ago there was a move to transition to neutral words like “incident,” “collision,” or “crash.” One meaning of accident is that it is something that “happens by chance” - seemingly removing the notion of culpability and/or preventable causality. Clearly many incidents are preventable and have causation (e.g., speeding, distraction, being under the influence, risk taking behaviors, etc.). “Accident” as a heading appears again in Chapter 400 (e.g., see 402.2 Accidents), and elsewhere in the document. Recommend wording change.	Comment resulted in a HDM change.	
9E-045	Chapter 100; Topic 106	Stage Construction and Utilization of Local Roads	Page 100-97, This section provides guidance when costs increase, but not when they decrease, as they have in recent times. Add language about when estimates exceed actual costs?	Comment did not result in a HDM change.	Stage construction is used as a cost control measure. The Departmental procedures to use, when cost estimates exceed the bids received, are discussed in other published guidance documents.
9E-046	Chapter 100		Page 100-102, (b) Conferences and Hearings: Check meaning of “No conferences or hearings are to be held…” where or when “…all of the contacted agencies say …freeway”	Comment did not result in a HDM change.	Statement is correct.
9E-047	Chapter 100		Page 100-103 paragraph beginning It May, third line begins “facilityat”	Comment resulted in a HDM change.	

9E-048	Chapter 100		Page 100-104, (e): Line 19: reads “should be as short as direct as practical—probably “as short and direct”?	Comment resulted in a HDM change.	
9E-049	Chapter 100		Continuing: The paragraph later speaks of “…use of the facility for wheelchairs, walks and other mobility aids.” Probably should read “use of facility by people using wheelchairs, walkers or other mobility aides”	Comment combined with other comments and resulted in a HDM change.	
9E-050	Chapter 100		Page 100-104, (f): Correct “agency which desire.” Correct “The agreement covers… maintains…” –maintenance?	Comment resulted in a HDM change.	
9E-051	Chapter 100		Page 100-104 (a): Needs a re-write. …conventional highways and repeated text	Comment resulted in a HDM change.	
9E-052	Chapter 100		Page 100-105, column 2: Should the freeway lanes expected to have significant BRT use be 12 feet wide or be at least 12 feet wide?	Comment did not result in a HDM change.	12 feet wide.
9E-053	Chapter 100; Topic 109	Scenic Values in Planning and Design:	The first sentence seems odd, as the appearance of what is not specified--- the reference could be to the motorists or vehicles. Meaning would change by beginning “For any highway…” vs. “On”	Comment combined with other comments and resulted in a HDM change.	
9E-054	Chapter 100		Page 100-106. Last sentence of column 1: Who determined the policy that “Economy consistent with traffic needs” are truly of “paramount importance.” Is this state policy? If so, it should be reconsidered, because as stated, the safety of people and other living things is inherently less important ----making “traffic” king. The concept of Complete Streets truly requires significant rethinking of the priority placed on “mobility” as a word often used to mean “vehicular throughput.”	Comment resulted in a HDM change.	
9E-055	Chapter 100		Page 100-109; bottom of column 1: The erosion control practices in (a), call for an identification of “…all waters in the vicinity of a highway project which might affect construction, maintenance and operational activities.” This seems backwards. Should not there be an identification of all waters that might be affected by construction, maintenance and/or operational activities?	Comment did not result in a HDM change.	Wording is correct in HDM.
9E-056	Chapter 100; Index 110.7	Traffic Control Plans	Page 100-116, paragraph 1: Suggest wording change to “…providing for bicyclists, pedestrians, transit users, and transit operators.” Ditto in paragraph 2.	Comment combined with other comments and resulted in a HDM change.	
9E-057	Chapter 100		Page 100-118 bullet 2: plural—pedestrians	Comment resulted in a HDM change.	
9E-058	Chapter 100		Page 100-119 bullet #9: Separate”ADA Design” from “Guardrail”?	Comment combined with other comments and resulted in a HDM change.	
9E-059	Chapter 100		Page 100-122, first line. If “steep slopes” are just one example of a “site specific factor,” then e.g. should be used versus i.e. If it is only steep slopes, then the sentence could just read: “Steep slopes should be given special care.	Comment did not result in a HDM change.	
9E-060	Chapter 200		Page 200-161, column 2, last paragraph: Correct Strucutre to Structure	Comment resulted in a HDM change.	
9E-061	Chapter 200		Page 200-164 (6) column one, mid paragraph: Correct to--This accessibility regulation requires?	Comment resulted in a HDM change.	
9E-062	Chapter 200		Page 200-174, first underlined sentence: “10 feet” and “Skewed” are run together. Should be “Skewed crossings should be avoided”	Comment resulted in a HDM change.	
9E-063	Chapter 200		Page 200-174: This states that Class I bikeways are designed for the exclusive use of bicycles and pedestrians.” If they are for bicyclists (not bicycles) and pedestrians they should be called multiple use paths—not bikeways. “Bikeways” as a label seems to give preference to the bicycle mode. On page 900-729 “Bikeway” is defined as a facility that is provided primarily for bicycle travel. This definition makes walkers “second class citizens.” Consideration should be given to using the term “bikeway” only for Class II and III, not I facilities (an exception might be a facility like the recently completed Yountville bikeway that has a parallel pathway for pedestrians, thus each mode has a separate facility). Properly designed, Class I facilities can accommodate equestrian use.	Comment(s) beyond the scope of this HDM update.	Bikeway classifications are defined in the California Streets and Highways Code. Any changes to them requires legislation.
9E-064	Chapter 400; Index 401.1		Page 400-243, column 1, sentence beginning with “Transit”: Correct to “Transit stops and their placement need to take ...”	Comment resulted in a HDM change.	
9E-065	Chapter 400		Page 400-245, bullet 1: crashers or crashes?	Comment resulted in a HDM change.	
9E-066	Chapter 400; Figure 403.6A		Page 400-248, Reads “A prevalent type of crash type…” would read better “ A prevalent crash type …”	Comment resulted in a HDM change.	

9E-067	Chapter 400; Figure 403.6A		Page 400-249, Why do the pedestrian crossings show direction? Would not bilateral direction flow be possible in any of the four crosswalks? This is confusing.	Comment combined with other comments and resulted in a HDM change.	
9E-068	Chapter 400; Index 403.7		Page 400-255, last line: Correct “by6 feet”	Comment resulted in a HDM change.	
9E-069	Chapter 400; Index 403.11		Page 400-256, line 1: Correct to “Intersections need to…”	Comment resulted in a HDM change.	
9E-070	Chapter 400; Index 403.11		Page 400-256, sentence #1: Rethink who a “user” may be. Here and elsewhere: Can a “vehicle” be a user? Perhaps driver or motorist, and bus operator, would be more accurate. Likewise can a bicycle be a “user”? Can “transit”? Continuing: Confusing statement ---The statement that “Bicycles especially are considered vehicles” implies that the others in list are not considered vehicles quite so much --- which from the list would include vehicles and transit. Furthermore, are bicycles truly considered to be vehicles in this HDM? Continuing: Additionally, throughout manual, “transit” is used where “buses” would be more descriptive. “Transit” includes trains, light rail, etc. Continuing, still on 403.11 Consider All Users: I think a following sentence should read “Pedestrians can be prohibited from crossing one or more legs…”	Comment resulted in a HDM change. Comment did not result in a HDM change. Comment resulted in a HDM change.	The word "transit" has been substituted for the word "bus" as part of this change because it is a broader term.
9E-071	Chapter 400		Page 400-257 (1) Centerlines (2) I, (b): Reword the sentence “Along roadways where turning opportunities (e.g.…) neither…” See (6) (a) for a correct form.	Comment did not result in a HDM change.	The text in these two locations is intentionally different.
9E-072	Chapter 400; Index 401.4		Page 400-259, sentence 1: Correct to “In highly … the volume… is large…” This is a long, one paragraph sentence.	Comment did not result in a HDM change.	
9E-073	Chapter 400		Page 400-260, last paragraph, line 2: Correct ”referse” to “refers”	Comment resulted in a HDM change.	
9E-074	Chapter 400		Page 400-278 (2), Design Elements (a), line 3: 12 feet or a minimum of 12 feet?	Comment did not result in a HDM change.	12 feet
9E-075	Chapter 400		Page 400-279 (e): Sentence beginning “As a minimum, storage length should be calculated the same manner as…” Correct to “…calculated in the same…”?	Comment resulted in a HDM change.	
9E-076	Chapter 400		Page 400-280 and elsewhere: see prior comments re the term “accident”	Comment resulted in a HDM change.	
9E-077	Chapter 400		Page 400-286, last line: “forgiving” seems an odd word choice ---inanimate designs having mercy on straying drivers.	Comment did not result in a HDM change.	This is commonly used , state-of-the-practice terminology.
9E-078	Chapter 500		Page 500-301 column 2, paragraph 2: Update to 2010 Census?	Comment resulted in a HDM change.	
9E-079	Chapter 500; Topic 502; Index 502.1		Page 500-301, paragraph 1: Should not land use also beconsidered?	Comment did not result in a HDM change.	It is, which is why the term "local planning" is in the string of words.
9E-080	Chapter 500; Topic 502; Index 502.2		Page 500-302, line 7: “orienting maps at right angles”---correct to “orienting ramps…”	Comment resulted in a HDM change.	
9E-081	Chapter 500		Page 500-306, column 2, paragraph 2, last sentence: Correct “condiered” to “considered.”	Comment resulted in a HDM change.	
9E-082	Chapter 500		Page 500-323, column 1, paragraph beginning “Signing for a HOV…” An SOV lane is referenced. Is this to mean the non-HOV? Certainly if the HOV is designated for 3 persons, then the other lanes are not for SOV's alone, but also for a driver with a passenger. HOV use is optional for drivers carrying multiple passengers. A vehicle may be an SOV at a particular time, but not a lane. Please correct.	Comment did not result in a HDM change.	Wording is per state-of-the-practice as stated in the draft text.
9E-083	Chapter 600		Page 600-370, last paragraph: Correct “concurrenceof”	Comment resulted in a HDM change.	
9E-084	Chapter 610		Page 610-372, 611.2 Selection Criteria, bullet #2: “Traffic considerations” are listed as one consideration. It should be explicitly stated that the “traffic” considered includes traffic by bicycle. In Sonoma County certain pavement rehabilitation decisions have not sufficiently considered bicyclists. There have been recent examples of chip sealing projects that greatly increased traveling hazards for bicyclists. The “traffic” considered seemed to be exclusive to motorized vehicles	Comment did not result in a HDM change.	Traffic has been defined earlier in this manual as including bicycles.
9E-085	Chapter 610; Topic 615		Page 610-388, Climate: Is climate change to be considered, including the need to adapt to sea level rise and perhaps weather extremes (temperature and conditions)? Guidance may be useful in the manual as adaptation relates to structures, pavement choice, erosion, drainage, and facility placement, as well as facility retrofitting.	Comment(s) beyond the scope of this HDM update.	Climate change guidance is currently under development by others within the Department.
9E-086			Pagination goes from 1000-730 to 900-731 to 1000-732 to 900-733 to 1000-734	Comment resulted in a HDM change.	

9E-087	Chapter 900		On page 900-731 (2): Perhaps change “college campuses” to “school campuses” to be inclusive of university, grade school and other school campuses. Pluralize: right of way to either rights of way or right of ways?	Comment resulted in a HDM change.	
9E-088	Chapter 1000		Page 1000-732, Column 1, top: “alternating segments…is generally incompatible” (not are).	Comment resulted in a HDM change.	
9E-089	Chapter 1000		Page 1000-732, 1003.1: Correct “… and the face that pedestrians do not walk …”	Comment resulted in a HDM change.	
9E-090	Chapter 1000		Continuing: Also, It is clear from this section that bicyclists are the preferred users. Should one mode truly take precedence over another? In Sonoma County, Class I facilities are mostly used as multi-use pathways.	Commentary, no response required.	
9E-091	Chapter 1000; Figure 1003.1A		Page 1000-734, Close parentheses in label: (Bike Path.	Comment resulted in a HDM change.	
9E-092	Chapter 1000		Page 1000-742, paragraph 1: Line 1 “…abreast of each other…” is redundant.	Commentary, no response required.	
9E-093	Chapter 1000		Continuing: Line 10: Awkward sentence—please reword” “Where this is not possible or feasible, to the following or combination thereof should be provided: …”	Comment resulted in a HDM change.	

County Government Organizations

Commentor 10E: **Dan Dawson, Principal Transportation Planner**
Organization: **County of Marin - Department of Public Works**

Comment Number	Chapter & Index	Index Title	Comment/Issue	Resolution of Comment/Issue	Commentary, as necessary, on Resolution of Comment/Issue
10E-001	General		The manual now refers to MUTCD and CVC and is appropriate and should remain in the manual as the three documents are interelated.	Commentary, no response required.	
10E-002	Chapter 60; Topic 62	Definitions	62.1 (2) Bike Path. "*Provides a completely separated right of way for the exclusive use of bicycles . . .* " Class I paths are sometimes within the same right of way as a roadway, though still separated from the roadway. Perhaps restate as "*Provides a completely separated facility for the exclusive use . . .* "	Comment combined with other comments and resulted in a HDM change.	
10E-003	Chapter 100; Topic 105	Pedestrian Facilities	Index 105.1 - General Policy: Was previoulsy titled Sidewalk is now changed to pedestrian facilities and defines the word "Pedestrian". In this section , a pedestrian is defined as "*a person on foot or who uses a conveyance such as roller skates, skateboard , etc. other than a bicycle. A pedestrian can also be a person with a disability on a tricycle or quadricycle or in a wheelchair. Pedestrians, unless restricted by law are allowed to use conventional highways and some expresssways for transportation purposes.* " The definition of a pedestrian is going to be an issue when it includes a person with roller skates, skateboard etc. since many downtown areas prohibit such users on sidewlaks. Further, the new expanded federal definition of "mobility assistive devices" needs to be factored in here.	Commentary, no response required.	
10E-004	Chapter 100; Topic 105.2	Sidewalks and Walkways	The minimum width of a sidewalk has changed from 5 ft (105.1 in previous HDM) to "*The minimum width of a sidewlk should be 8 feet diresctly adjacent to a curb and 6 ft when separated by a planting strip* " feet when separated by a planting strip. This is a significacnt change and is probably excessive in low-density residential areas where 5' is more than enough and potentially infeasible in some areas with unusually narrow right of way.	Commentary, no response required.	This is a project specific decision.
10E-005	Chapter 100; Index 105.2 (8)	Transit Stops. Sidewalks	Under the same topic of pedestrian facility it states: "*Sidewlaks should be built to connect transit stops to local streets.* " This statement should only apply to urban areas because in rural areas installing and or building sidewalk might not be feasible as far as connectivity and path of travel is concerned.	Commentary, no response required.	Which is why the word "should" has been used because a place-type, project specifc decision needs to be made.
10E-006	Chapter 200; Index 208.4	Bridge Sidewalks	Revise language to read: "*Sidewalks on bridges **shall** be provided wherever pedeastrian traffic is not prohibited . . .* " In applying DD-64-1 there is no justification to have permissive language; if pedestrians are not prohibited, they should be accommodated outside of the traveled way or shoulder.	Comment combined with other comments and resulted in a HDM change.	

10E-007	Chapter 300; Tpoic 301; Index 301.2	Class II Bikeway Lane Width Item (1)	The exceptions for bike lane width are unclear in that it is implied that the five-foot standard is only applicable to "main streets" in urban, suburban, and rural places. Current standards require 5-foot bike lanes whenever on-street parking is permitted and this standard should be retained, whether it is a "main street" or not because of door-zone hazards inherent with on-street parking and bike lanes and the need for additional maneuvering space for cyclists.	Comment combined with other comments and resulted in a HDM change.	
10E-008	Chapter 300; Figure 301.2A	Typical Class II Bikeway Cross Sections	Bike lanes should be shown as 5' minimum in diagrams I and II because on-street parking is permitted. Diagram II needs to show the bike lane dimensions and placement for this scenario. If a bike lane is assumed within the 11' shown in the rolled curb scenario, this is insuffuent space as it would allow only a 6' parking lane with a 5' bike lane. Whether parking tees are marked or spaces are otherwise designated or not should be immaterial. Residential streets typically do not have spaces delineated. In areas likely to have truck or bus parking on street (e.g. commercial loading zones, tour bus parking, etc.) the minimum parking lane width requirement should be 9' or 10' to account for the ider progfile of these types of vehicles.	Comment combined with other comments and resulted in a HDM change.	
10E-009	Chapter 300; Topic 309; Index 309.1	Horizontal Clearances for Highway	*Since bicyclists may travel on shoulders, at least 1 foot of horizontal clearance from the edge of shoulder to fixed objects, guardrail, or barriers should be provided to minimize the risk of a bicyclist collsion.* This statement is in conflict with Topic 1003 - Bikeway Design Criteria (2) Clearance to Obstructions: *A minimum 3-foot horizontal clearance from the paved edge of a bike path to obstructions shall be provided adjacent to the pavement.*	Comment combined with other comments and resulted in a HDM change.	
10E-010	Chapter 400; Index 402.2	Accidents	This section should be retitiled "Collisions" and any use of the word "accident" should also be replaced with "collision". The use of the "accident" assigns a value judgement that any collision is not the fault of the driver/cyclist/pedestrian's behavior but automatically that of the facility in question or some other party.	Comment combined with other comments and resulted in a HDM change.	
10E-011	Chapter 400; Index 403.11	Consider All Users	"*Bicyclists especially are considered vehicles per the California Vehicle Code . . .*" Bicycles are devices, not vehilces (CVC Sec. 231). Bicyclists have the same rights and responsibilities as motorists and bicycles are required to be operated, with some exceptions, as one would a motor vehicle but the bicycle does not experience vulnerability; it is the cyclist. The spirit of the sentence is correct but it should be reworded to reflect cyclists and not the bicycle (the user and not the conveyance).	Comment combined with other comments and resulted in a HDM change.	
10E-012	Chapter 600; Topics 603.4, 635.1 (1), and 645.1		The language "*On overlay projects, the entire traveled way and paved shoulder shall be overlaid*" must also include any adjacent Class I bikeway facility that is within the same corridor or right of way as the roadway overlay project since the Class I facility is part if the 'traveled way' of that corridor, was presumably constructed at the same time as the mainline facility, would have similar pavement life expectancy, and would have similar needs for pavement rehabilitation as the mainline facility. Also, if sidewalks are present in the corridor, they should also be evaluated at the same time and improved if need (e.g. heaved slabs due to tree roots).	Commentary, no response required.	Guidance on project scoping is included in the Project Development Procedures Manual and not in the HDM.
10E-013	Chapter 1000; Topic 1003; Index 1003.1 (1)	Widths and Cross Slopes	The first paragraph should clearly state the minimum width is for the travled way, exclusive of shoulders, and/or the second paragraph should clarify that is the required shoulders are paved that that paved area is in addition to the minimum required path pavement width.	Comment did not result in a HDM change.	The text references Figure 1003.1A for more details.
10E-014	Chapter 1000; Topic 1003; Index 1003.1 (4)		Bicycle path intersections and approaches "*should be on relatively flat grades*". This requirement might not be achievable in rural roadways and needs to be adjusted to differentiate between urban and rural roads.	Comment did not result in a HDM change.	This is not a "requirement". The statement is providing design guidance.
10E-015	Chapter 1000; Topic 1003; Index 1003.1 (4)		The third and fourth paragraphs conflict with each other (*It is discouraged to combine a bicycle path with a crosswalk at the intersection of two roadways.* Vs. *When crossing an arterial street, the crossing should either occur at the pedestrian crossing . . .*). The current language (paragraph 4) better captures them design issue and recommended solutions.	Comment combined with other comments and resulted in a HDM change.	
10E-016	Chapter 1000; Topic 1003; Index 1003.1 (13)	Pavement Structure	Additional consideration should be given to users of the path, including anticipated frequency of the use by maintenance vehicles, emergency vehicles, etc. as a wider and/or more substantial pavement structure may be justified and necessary to minimize the potential for early surface failure.	Comment combined with other comments and resulted in a HDM change.	
Commentor 11E:	**Richard E. Crompton, Director; submitted by Karel Shaffer (Civil Engineer, Traffic Engineering Section)**				
Organization:	**County of San Diego - Department of Public Works**				
Comment Number	**Chapter & Index**	**Index Title**	**Comment/Issue**	**Resolution of Comment/Issue**	**Commentary, as necessary, on Resolution of Comment/Issue**

11E-001	General		The county is surprised that non-traffic control items of the 1996 Caltrans Traffic Manual (Chapter 7 "Traffic Safety Systems" and the lighting portion of Chapter 9) have not been assimilated into the proposed Caltrans Highway Design Manual changes as suggested on the bottom of the Caltrans Manual of Uniform Traffaic Control Devices Branch webpage at http://www.dot.ca.gov/hq/trafficops/signtech/mutcdsupp/.	Comment(s) beyond the scope of this HDM update.	The assimulation suggested is currently under evaluation and may be part of a future HDM update.
11E-002	General		Furthermore, California's budget woes are no secret and transportation needs statewide far outpace revenues available for even basic maintenance of the existing transportation network. Therefore, new mandates need to be accompanied by revenue or should be implemented in a way that allows local agencies the flexibility to upgrade infrastructure and facilities over time and in a way that is sensitive to the circumstances of each jurisdiction.	Commentary, no response required.	
	Please see File 11E to view comments received on Draft Pages of HDM and their resolution.				

City Government Organizations

Commentor 12E: **Natalie Meeks, Director; submitted by Tahir Jalai, Traffic Engineering Manager**
Organization: **City of Anahiem, Department of Public Works**

Comment Number	Chapter & Index	Index Title	Comment/Issue	Resolution of Comment/Issue	Commentary, as necessary, on Resolution of Comment/Issue
12E-001	General		Inclusion in the revised HDM of a discussion clarifying the definition of "divided" and "undivided" arterial highways and safety and capacity enhancements associated with construction of raised median.	Commentary, no response required.	
12E-002	General		Clarification of requirements for inclusion of traffic control plans in PS&E packages. It may be cost prohibitive to provide project-specific traffic control plans for smaller scaled projects, such as updating curb ramps at City intersections. Use of standard lane closure details as depicted in Work Area Traffic Handbook (WATCH) and California Manual on Uniform Traffic Control Devices may be beneficial.	Commentary, no response required.	
12E-003	General		The discussion related to median openings no less than 1,600 feet apart may be appropriate for rural areas but may not be practical in urbanized settings.	Commentary, no response required.	
12E-004	General		There is considerable merit in extending the class II bike lanes to intersections. At most major intersections where supplemental turn lanes are provided (i.e., dual left and/or exclusive right-turn lanes), extending the bike lane to the intersection may require extensive right-of-way acquisitions. At times, public agencies are pondering providing miles of mid-block bike lanes or doing nothing at all due to cost associated with right-of-way should be considered an eligible expenditure for bike lane grant applications.	Comment combined with other comments and resulted in a HDM change.	

Commentor 13E: **Farid Javandel, Transportation Manager; submitted by Eric Anderson, Associate Planner - Bicycle and Pedestrian Programs**
Organization: **City of Berkeley - Public Works Department, Transportation Division**

Comment Number	Chapter & Index	Index Title	Comment/Issue	Resolution of Comment/Issue	Commentary, as necessary, on Resolution of Comment/Issue
13E-001	General		We appreciate this opportunity to have input on the Highway Design Manual and we applaud many of the changes and improvements in the manual. The importance of the California Highway Design Manual for bicycling and walking cannot be understated. Sections 890-891 of the California Streets and Highways Code require all city, county, and regional agencies to follow Caltrans' minimum safety design criteria for bike and pedestrian ways. The standards for bike and pedestrian ways included in the HDM (and the California Manual on Uniform Traffic Control Devices) therefore apply to every single such facility in the state and not just to those owned and maintained by the state. Communities throughout California are experiencing an unprecedented increase in bicycling and walking and a concurrent demand for new and improved street designs to accommodate and encourage these modes. Innovative treatments are proliferating throughout California and the U.S. Because Caltrans' safety design criteria are mandatory throughout the state, it is crucially important that the new Highway Design Manual provides the necessary guidance on the use of these innovations.	Commentary, no response required.	

13E-002	General		This revision does not appear to have taken into consideration some significant recent research on bikeway design conducted since the last major revision of the HDM. For example, the National Cooperative Highway Research Program revision of the American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities. Another recent document of national significance about bikeway design is the National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide. These and other documents should serve as inputs to the Highway Design Manual in providing guidance for the full range of bikeway designs that local California jurisdictions want to implement. An incomplete list of treatments for which geometric standards and guidance is lacking or which are effectively prohibited by the Highway Design Manual is provided below: • Cycle tracks (bicycle facilities physically separated from the motor vehicle traffic and distinct from the sidewalk) • Raised bike lanes (bike lanes separated from the rest of the roadway with a slight grade elevation) • Buffered bike lanes (bike lanes with a marked buffer separating the bike lane from the adjacent parking lane and/or general use travel lane) • Shared use paths (the HDM does a poor job of identifying that most “bike paths” are shared use, unless separate facilities are provided for pedestrians).	Comment(s) beyond the scope of this HDM update.	Currently being discussed with the California Bicycle Advisory Committee.
13E-003	General		We recommend that Caltrans consider the creation of a task force to provide bicycle and pedestrian design guidance to the draft MUTCD and HDM to ensure that these manuals include the latest research on bike and pedestrian way design.	Commentary, no response required.	
13E-004	Global		In our review of chapters relevant to bicycles and pedestrians, we found inconsistency within separate sections of the document, as well as instances where HDM does not reflect intent or even conflicts with California Vehicle Code or CAMUTCD. We recommend a thorough review of the document by a person familiar with bicycle and pedestrian elements of these documents, with an eye toward maintaining consistency. Convening a statewide task force for this purpose is one possible solution.	Commentary, no response required.	
13E-005	Global		There is no method to study or experiment with designs considered for inclusion in the HDM. While the State Engineer has the authority to approve deviations from standard design, there is no process to consider these deviations for inclusion in the Manual. Consider implementing a policy and procedure for design study/experiment similar to that in the CA MUTCD.	Commentary, no response required.	Currently being discussed with the California Bicycle Advisory Committee.
13E-006	Global		Class II Bicycle Lane Guidance has been moved out of Chapter 1000 - Bikeway Design and into other sections of the HDM. While including this information in other chapters is important, and at the risk of redundancy, we strongly recommend gathering all Bikeway Design guidance into one location in Chapter 1000. This will allow designers to continue to have a readily-available and easy to distribute and reference resource for bikeway design.	Comment did not result in a HDM change.	Distribution of this information was done so that the manual users will obtain a "complete" discussion of what they need to know when designing a "complete" facility. Duplicating text within this manual poses the risk of guidance not being consistent and/or not being interpreted consisently.
13E-007	Global		Add reference to research noting that pedestrian fatalities increase dramatically at higher speed collisions. Supporting Documentation: http://www.walkinginfo.org/problems/problems-motorists.cfm Source: Knoblauch RL, Tustin BH, Smith SA, Pietrucha MT. Investigation of Exposure-Based Pedestrian Accident Areas: Crosswalks, Sidewalks, Local Streets, and Major Arterials. DOT publication FHWA-RD-87-038. Washington, DC: US Dept of Transportation; 1987.Killing Speed and Saving Lives, U.K. Department of Transportation, London, 1987	Comment did not result in a HDM change.	The HDM does not reference research documents.

13E-008	Chapter 60; Index 62.4 (12)	Pedestrian Refuge	Draft Text: A pedestrian refuge is a small section of pavement or sidewalk, completely surrounded by asphalt or other road materials, where pedestrians can stop before finishing crossing a road. It is typically used when a street is very wide, as the pedestrian crossing can be too long for some individuals to cross in one traffic light cycle. Comment: This definition is unclear and it implies that pedestrian refuges are only used at signalized intersections, which is not true. Recommended revision: "Pedestrian Refuge. ~~A pedestrian refuge is a small section of pavement or sidewalk, completely surrounded by asphalt or other road materials,~~ **A defined area between roadway lanes** where pedestrians can stop before finishing crossing a road. It is typically used when a street is very wide **or to simplify pedestrian movements at complex intersections.** ~~**, as the pedestrian crossing can be too long for some individuals to cross in one traffic light cycle.**~~"	Comment combined with other comments and resulted in a HDM change.	
13E-009	Chapter 60; Index 62.10 (1)	Bicycle	Draft Text: A bicycle is a device propelled exclusively by human power. Comment: Definition too vague, and doesn't preclude skateboarders, scooters, etc... as defined in (9) pedestrians. We recommend that the HDM use the California Vehicle Code definition: "A bicycle is a device upon which any person may ride, propelled exclusively by human power through a belt, chain, or gears, and having one or more wheels. " Supporting Documentation: http://dmv.ca.gov/pubs/vctop/d01/vc231.htm	Comment resulted in a HDM change.	
13E-010	Chapter 60; Index 62.10	Pedestrians	Draft Text: "A person on foot or who uses a conveyance such as roller skates, skateboard, etc., other than a bicycle. A pedestrian can also be a person with a disability who uses assistive devices, such as a wheelchair, for mobility." Recommend that the HDM use the CVC definition for pedestrian: "467. (a) A "pedestrian" is a person who is afoot or who is using any of the following: (1) A means of conveyance propelled by human power other than a bicycle. (2) An electric personal assistive mobility device. (b) "Pedestrian" includes a person who is operating a self-propelled wheelchair, motorized tricycle, or motorized quadricycle and, by reason of physical disability, is otherwise unable to move about as a pedestrian," Supporting Documentation: http://dmv.ca.gov/pubs/vctop/d01/vc467.htm	Comment combined with other comments and resulted in a HDM change.	
13E-011	Chapter 100; Index 102.2	Design Capacities (Sidewalks)	With the publication of the 2010 Highway Capacity Manual, this entire index should be rewritten. The suggested new index title is "Multi-modal Level of Service". The rewritten text should be based on and refer to the 2010 Highway Capacity Manual Multi-Modal Level of Service. Alternatively, there could be three new separate indexes (Pedestrian Level of Service, Bicycle Level of Service, and Transit Level of Service). Additionally, perhaps Topic 102 should be renamed to "Highway Capacity and Level of Service) since the new HCM doesn't refer only to Capacity anymore. Supporting Documentation: 2010 Highway Capacity Manual	Comment combined with other comments and resulted in a HDM change.	
13E-012	Chapter 100; Index 105.1		Draft Text: "LOS in sidewalks and walkways are primary a function of pedestrian volume and pedestrian path width." This is no longer true per the 2010 Highway Capacity Manual. We recommend simply deleting this sentence. Supporting Documentation: 2010 Highway Capacity Manual	Comment(s) beyond the scope of this HDM update.	Once the Department formally adopts the HCM, the HDM will be modified appropriately.

13E-013	Chapter 100; Index 105.2		Draft Text: "The minimum width of a sidewalk should be 8 feet directly adjacent to a curb and 6 feet when separated by a planting strip." We agree with these new minimum dimensions and support their inclusion in the final document. Consistent with Berkeley Pedestrian Master Plan Design Guidelines.	Commentary, no response required.	
13E-014	Chapter 200; Index 204.5		New Section. Suggest using "bicycle passing lane" instead of "bicycle turnouts". A turnout implies that the user will stop whereas the intent should be to allow cyclists to continue riding while faster vehicles pass them. While the bicycle passing lane text is excellent, especially with the addition recommended above, another consideration could be made for sustained grades. Recommend a new section (5) in this index: "(5) Bicycle Climbing Lanes. Where less than 4'shoulders are otherwise provided, consideration should be given to providing a minimum 4' shoulder in the uphill direction only, with a narrower shoulder in the downhill direction, since uphill cyclists will be overtaken far more frequently than downhill cyclists."	Comment combined with other comments and resulted in a HDM change.	
13E-015	Chapter 200; Index 204.5 (4)		Draft Text: "Where less than 4'shoulders are provided, consideration should be given to providing bicycle turnouts equal to a standard shoulder width as often as possible. These turnouts will allow safe passing of bicycles by other vehicles in addition to providing resting opportunities on the sustained grade for the cyclist." Suggest using "bicycle passing lane" instead of "bicycle turnouts". A turnout implies that the user will stop whereas the intent should be to allow cyclists to continue riding while faster vehicles pass them. This is an excellent addition to this document. However, it isn't quite sufficient as written. When climbing sustained grades, many cyclists do not want to stop, over concern of losing their momentum and needing to start again. Therefore, unless these bicycle passing lanes are long enought for cyclists to continue riding while letting vehicles pass, they won't be used by all cyclists, and will therefore be ineffective. Recommend the following changes: "Where less than 4'shoulders are provided, consideration should be given to providing bicycle passing lanes equal to a standard shoulder width as often as possible. These passing lanes **should be long enough to allow cyclists to continue to ride while allowing** ~~will allow safe passing of bicycles by~~ other vehicles **to pass. These turnouts may also provide** ~~in addition to providing~~ resting opportunities on the sustained grade for the cyclist." As an alternative, it would be better to specify a minimum length of a bicycle passing lane in section (b) of this section. However, someone would need to calculate what this length should be. I would estimate that it would need to be at least 200 feet long given a typical bicyclists climbing speed and how long an overtaking maneuver will take.	Comment combined with other comments and resulted in a HDM change.	
13E-016	Chapter 200; Index 205.4		Draft Text: "At unpaved driveway crossings of bike paths and pedestrian walkways or driveway intersections with roadways or pedestrian paths, the driveway shall be paved a minimum of 15 feet or the length of the unpaved driveway…" We agree with this addition and support its inclusion in the final document. Consistent with pathway design experience in Berkeley.	Commentary, no response required.	

13E-017	Chapter 200; Index 208. 10 (6)	Bicycle Railing	Draft Text: "The minimum height of bicycle rail is 54 inches above the deck surface. Pedestrian railings and combination railings consisting of a concrete barrier surmounted by a fence or tubular railing are satisfactory for bicycles, if at least 54 inches high." Based on a research study, the AASHTO Bike Guide now recommends lower railing height for bicyclists, from 42 to 48 inches. Supporting Documentation: Draft AASHTO Guide for the Development of Bicycle Facilities, Section 5.2.10.	Comment(s) beyond the scope of this HDM update.	A Design Information Bulletin is in the process of being written on this subject.
13E-018	Chapter 300; Index 301. 2 (1)		Draft Text: "Class II bikeways (bike lanes), for the preferential use of bicycles, may be established within the roadbed, immediately adjacent to the rightmost lane" Although this statement is a "may" statement initially, the qualifying portion of the statement seems fairly restrictive. For example, this statement could be construed as not allowing a through bike lanes to the left of right turn lanes, a common and accepted practice, that is detailed elsewhere in the HDM. Additionally, this statement could be construed as precluding left side bike lanes on one way streets, which are also discussed elsewhere. Finally, the word "immediately" could be construed to preclude the use of a buffer between travel lanes and bike lanes. While buffered bike lanes have challenges and must be applied carefully in the appropriate locations, they shouldn't be precluded by the HDM. Recommend the following revision: "Class II bikeways (bike lanes), for the preferential use of bicycles, may be established within the roadbed, **and are typically placed** ~~immediately~~ adjacent to the rightmost lane."	Comment combined with other comments and resulted in a HDM change.	
13E-019	Chapter 300; Index 301. 2 (1)		Draft Text: "Bicycle lanes must not be placed between the parking area and curb." Prohibition of bike lanes between vehicle parking areas and the curb could be construed as banning a type of bikeway known as cycle tracks, although it doesn't necessarily do so since cycle tracks are a different kind of bicycle facility. This is an innovative bicycle facility growing in popularity nationally and identified as a potentially valuable strategy for increasing bicycle mode split and reducing GHG emissions and vehicle miles traveled. The HDM should not preclude the use or funding of these facilities where prioritized by local communities with appropriate designs on appropriate roadways. As discussed in our comments on Chapter 1000, this new type of bicycle facility should be defined in the HDM and a few statements about design should be included in the HDM. Full design details may not be appropriate because cycle track design is still in its infancy in the United States. But basic design statements would be beneficial, e.g. that cycle tracks need to be wide enough to be maintained, that there needs to be a buffer from parked vehicles to reduce car door crashes, and that intersections and driveways need to be designed to reduce potential conflict between turning vehicles and bicyclists. Supporting Documentation: NACTO Urban Bikeway Design Guide	Comment(s) beyond the scope of this HDM update.	Currently being discussed with the California Bicycle Advisory Committee.

13E-020	Chapter 300; Index 301. 2 (1)		Draft Text: "The minimum bike lane width shall be 4 feet, except where: > Posted speeds are greater than 40 miles per hour, a 6-foot bike lane shall be provided, or > In urban, suburban, and rural main street place types, a 5-foot bike lane shall be provided." 4 feet of space is an absolute minimum width for bike lanes and is barely enough space when there is anything adjacent to the bike lane including a vertical curb, parking, guardrail, etc. We recommend that the HDM state that bike lanes shall be a minimum of 5 feet, and then include 4 feet as an exception where there is no curb and gutter or on-street parking, or in retrofit situations on extremely constrained low-speed roadways with curbs but no gutter. The exception for 6-foot bike lanes on roads with speeds greater than 40 mph is a good one. The exception for certain place types isn't needed if 5 feet is made the minimum. Recommended text:"The minimum bike lane width shall be **5** ~~4~~ feet, except ~~where~~: **> A 4-foot bike lane may be used on roadways with no curb and gutter or on-street parking, where edge lines or lane lines are used to delineate the bike lane from other travel lanes or a buffer area, or in retrofit situations on extremely constrained low-speed roadways with curbs but no gutter; or** > **A 6-foot bike lane shall be provided where posted** speeds are greater than 40 miles per hour~~., a 6-foot bike lane shall be provided, or~~ ~~> In urban, suburban, and rural main street place types, a 5-foot bike lane shall be provided.~~" Supporting Documentation: Draft AASHTO Guide for the Development of Bicycle Facilities, Section 4.6.4.	Comment combined with other comments and resulted in a HDM change.	
13E-021	Chapter 300; Index 301. 2 (1)		Draft Text: "On streets with concrete curb and gutter, a minimum width of 3 feet measured from the bike lane stripe to the joint between the shoulder pavement and the gutter shall be provided." 3 feet of pavement next to a gutter joint is similar in operating width to 4 feet adjacent to a vertical curb - it is barely sufficent width for bicycle operation. We recommend that the width of bike lanes be shown to be 4 feet from the gutter joint to the stripe, but allowing 3 feet from the gutter joint in similar conditions to 4 feet adjacent to a curb as discussed in our other comment on this section. The use of "shoulder pavement" in this sentence is also confusing. Recommended revision: "On streets with concrete curb and gutter, a minimum width of **4** ~~3~~ feet measured from the bike lane stripe to the **gutter** joint ~~between the shoulder pavement and the gutter~~ shall be provided**, except in retrofit situations on extremely constrained low-speed roadways**. In no case should the distance between the curb face and the center of the bicycle lane line be less than 5 feet."	Comment did not result in a HDM change.	
13E-022	Chapter 300; Index 301. 2 (2)	Parking Adjacent to Class II Bikeways	This section does not address bicycle lane width where parking is adjacent, it addresses shared parking and bicycle lanes. We recommend moving the current text to a subsequent section and revising this section to address the width of bike lanes next to on-street parking.		

			Recommended text for this section:"When on-street parking is permitted, the bicycle lane should be placed between the parking lane an the travel lane. The recommended bicycle lane width in these locations is 6 feet and the minimum bicycle lane width shall be 5 feet. If a buffer is provided between the bike lane and on-street parking, a minimum bike lane width of 4 feet may be used. Where bicycle lanes are installed adjacent to parallel parking, the minimum combined width of the bike lane and the parking lane shall be 13 feet, except that a minimum width of 12 feet may be used where parking usage and turnover are both low. Where parallel parking spaces are marked adjacent to a bike lane, it is preferable to mark the spaces at a minimum width of 7 feet to encourage motorists to park as close as possible to the curb. Bicycle lanes should normally not be placed adjacent to conventional front-in diagonal parking, since drivers backing out of parking spaces have poor visibility of bicyclists in the bicycle lane. The use of back-in diagonal parking can mitigate the conflicts normally associated with bike lanes adjacent to diagonal parking. There can be numerous benefits to back-in diagonal parking for all roadway users: • Improved sight distance between exiting motorists and other traffic compared to parallel parking or front-in angled parking. • No conflict between bicyclists and open car doors. • Easier loading/unloading of vehicles. • Passengers (including children) are naturally channeled toward the curb when alighting. Supporting Documentation: Draft AASHTO Guide for the Development of Bicycle Facilities, Section 4.6.5.	Comment combined with other comments and resulted in a HDM change.	
13E-023	Chapter 300; Index 301. 2 (2)	Parking Adjacent to Class II Bikeways	Draft Text: "Bike lanes shall not be marked next to curbs where parking is prohibited only during certain hours of the day. This type of bike lane is unsatisfactory because bicycling can occur at all hours of the day, and it is unlikely that bicycle travel will occur only during the hours of the parking prohibition. In additions, enforcement of the parking prohibition to remove vehicles parked during bike lane designation is problematic." As stated in the our other comment on this section, this text addresses shared parking and bike lanes, not bike lanes adjacent to parking. We recommend that this text be moved to a new section called "Time Restrictive Bike Lanes and Parking". Additionally, the intent of this paragraph should be to strongly encourage full-time dedicated bicycle facilities, not to exclude innovative design or efficient use of right-of-way for bicycle accommodation under constrained conditions. As written, this statement is overly speculative (if not incorrect) and acknowledges neither the impact of nor variation in bicycle and parking demand on the decision to install Class II facilities. We recommend that the language from the existing HDM Chapter 1000 be used and modified as needed to meet current practice in several cities in the State. As written this language would ban "floating bike lanes" used in San Francisco and elsewhere. Supporting Documentation: The City of Palo Alto, but one of many examples, effectively utilizes time-restricted bike lanes as a critical strategy for providing dedicated bicycle facilities for the majority of the day (7am-7pm). These facilities provide essential connections for school and job-related commutes, as well as midday activities, while still allowing evening and weekend access to curbside parking for residential areas.	Comment combined with other comments and resulted in a HDM change.	
13E-024	Chapter 300; Figure 301.2A	I. MARKED PARKING	Recommend that the label be changed to "MARKED PARALLEL PARKING". Recommend that the bike lane width adjacent to parking be shown at 5 feet to match our recommendations in the text - 4 feet is simply too narrow next to parking. Include a footnote 2 on the dimension. Recommend that the parking dimension be shown as a minimum width of 7 feet since this will encourage motorists to park closer to the curb. Recommend that the combination of the bike lane plus parking be shown as 13 feet minimum and 15 feet preferred. Include footnote 2 on the dimensions, to refer to Index 301.2 (2) for additional guidance.	Comment combined with other comments and resulted in a HDM change.	
13E-025	Chapter 300; Figure 301.2A	II. PARKING PERMITTED WITHOUT MARKED PARKING OR STALL	Recommend that the combination of the bike lane plus parking be shown as 13 feet minimum and 15 feet recommended. A footnote (2) should be included to refer to Index 301.2 (2) for additional guidance.	Comment combined with other comments and resulted in a HDM change.	

13E-026	Chapter 300; Figure 301.2A	III. PARKING PROHIBITED	Recommend that the label be changed to "CURBED ROADWAY WITH PARKING PROHIBITED". Recommend that 5' minimum be shown from the face of curb on the left side, but that 4' minimum be shown for the measurement from the gutter joint to the stripe; include a footnote 1 on both dimensions. Recommend that on the left side a curb be added to the drawing, and the rest be left as shown.	Comment combined with other comments and resulted in a HDM change.	
13E-027	Chapter 300; Figure 301.2A	IV. TYPICAL ROADWAY IN OUTLYING AREAS PARKING RESTRICTED	Recommend that the label be changed to "UNCURBED ROADWAY WITH PARKING PROHIBITED". Recommend that 4' minimum be shown for the dimension, and include a footnote 1 on both dimensions. Recommend that on the left side a curb be added to the drawing, and the rest be left as shown.	Comment combined with other comments and resulted in a HDM change.	
13E-028	Chapter 300; Figure 301.2A	Notes	Recommend additional note (2): "(1) See Index 301.2 (2) for additional guidance." Renumber existing note (2) to be note (3)	Comment resulted in a HDM change.	
13E-029	Chapter 300; Index 307. 2		Draft Text: "Where 4-foot shoulders are not possible, consideration should be given to providing bicycle turnouts equal to a standard shoulder width that are 20 to 30 feet in length as often as possible." Suggest using "bicycle passing lane" instead of "bicycle turnouts". A turnout implies that the user will stop whereas the intent should be to allow cyclists to continue riding while faster vehicles pass them. The idea of bicycle passing lanes is a good one. But it is important to note that cyclists highly value momentum and are far less likely to use passing lanes if they are too short to continue riding in order to let vehicles overtake. We recommend that these passing lanes be at least 100 feet long and possibly longer in order to allow bicyclists to continue to pedal, perhaps slowing down a bit before merging back into the travel lane.	Comment combined with other comments and resulted in a HDM change.	
13E-030	Chapter 1000; Index 1000.1	N/A	Because the Bicycle Transportation portions of the HDM are relatively minimal and are intended primarily to provide minimum safety standards for bikeways, it would be beneficial to refer to other documents at the end of this index. Recommended wording: "Additional design guidance for bikeways can be found in the American Association of State Highway and Transportation Officials (AASHTO) “Guide for the Development of Bicycle Facilities" and the National Association of City Transportation Officials (NACTO) "Urban Bikeway Design Guide"." Supporting Documentation: Draft AASHTO Guide for the Development of Bicycle Facilities, Section 5.1 (http://design.transportation.org/Documents/DraftBikeGuideFeb2010.pdf) NACTO Urban Bikeway Design Guide (http://nacto.org/print-guide/	Comment combined with other comments and resulted in a HDM change.	
13E-031	Chapter 1000; Index 1002.1 (2)	Class I Bikeway (Bike Path) - entire section	The Caltrans HDM is the only major bicycle facility guideline or standard in the US that fails to recognize that the majority of "bike paths" will necessarily end up being shared with pedestrians, since paths are typically built in constrained rights-of-way where there isn't room to build separate paths. Recommendation: This description should be changed to describe "shared use paths" in addition to or instead of "bike paths". Supporting Documentation: 1999 AASHTO Guide for the Development of Bicycle Facilities, page 33; Draft AASHTO Guide for the Development of Bicycle Facilities, Section 5.1	Comment(s) beyond the scope of this HDM update.	Bikeway classifications are defined in the California Streets and Highways Code. Any changes to them requires legislation.

13E-032	Chapter 1000; Index 1002.1 (3)		Draft Text: "But a more important reason for constructing bike lanes is to better accommodate bicyclists through corridors where insufficient room exists for safe bicycling on existing streets" This is a opinion-based statement that safe bicycling is unsafe where there is less roadway width, which is not necessarily true in all conditions. Recommended rewrite: But a more important reason for constructing bike lanes is to better accommodate bicyclists through corridors where insufficient room exists for side-by-side sharing of existing streets by motorists and bicylists safe bicycling on existing streets.	Comment resulted in a HDM change.	
13E-033	Chapter 1000; Index 1002.1 (3)		Draft Text: This can be accomplished by reducing the number of lanes, reducing lane width, or prohibiting parking on given streets in order to delineate bike lanes. It isn't always necessary to fully prohibit parking to accomplish the stated goal. Recommended rewrite: "This can be accomplished by reducing the number of lanes, reducing lane width, or reconfiguring or prohibiting parking on given streets in order to delineate bike lanes."	Comment resulted in a HDM change.	
13E-034	Chapter 1000; Index 1003.1		Draft Text: "However, experience has shown that if regular pedestrian use is anticipated, separate facilities for pedestrians are necessary to minimize conflicts." This sentence isn't new in the HDM (it was in the old version), but it's a strong statement of seeming fact that isn't factual. To say that separate pedestrian facilities are NECESSARY is a very strong statement. Additionally, the sentence starts with "if regular pedestrian use is anticipated" which is probably true for the vast majority of "bike paths" in the state, at least any that are located within an urban or suburban area. It's important to encourage separate facilities as much as possible, but the reality of the situation is that there is often no room for such facilities. The HDM needs to catch up with other documents nationally and accept the fact that most paths will end up being shared use. See other comments about revising and adding to the types of bikeways defined and described in the HDM. Supporting Documentation: 1999 AASHTO Guide for the Development of Bicycle Facilities, pages 33, 35-36; Draft AASHTO Guide for the Development of Bicycle Facilities, Sections 5.1 and 5.2.1	Comment(s) beyond the scope of this HDM update.	The HDM will be evaluated against the AASHTO guidance once it is published.
13E-035	Chapter 1000; Index 1003.1		Draft Text: "Dual use by pedestrians and bicycles is undesirable, due to the significant differences in pedestrian and bicyclist speeds and maneuverability, and the face that pedestrians do not walk in straight predictable lines, especially when using a bicycle path. Pedestrians may be walking with pets on leashes or young children walking or riding toys, which creates additional risk of conflicts where the two should be separated wherever possible." Continuing on the comment on the previous sentence, these sentences make broad generalizations that are not appropriate for the pathway design realities faced by local agencies. At the very least, the word "sometimes" should be added to read, "…pedestrians sometimes do not walk in straight predictable lines...". One problem with these generalizations is that the significant differences in speeds and maneuverability aren't just between pedestrians and bicyclists, but between different individuals in the same user group such as experienced adult road cyclists versus child cyclists with families. Likewise pedestrians vary: a jogger could be traveling at 8 mph (as fast as the family on bikes) and in a nice straight line, but a parent walking with the 3-year-old child on a kick-bike might be traveling 1 to 2 mph with the child weaving all over the path. Not to mention skaters of all types, and the many other users now seen on a typical urban path.	Comment combined with other comments and resulted in a HDM change.	

			For all of these reasons, the HDM needs to define "shared use path" and include more sophisticated, appropriate guidance on how to allocate the space between various users. Or in some cases not - due to the huge variety of users as described above, in some cases it's best to just have one wide path, perhaps with a centerline and even two lanes marked in each direction, and the wide cross section of users use the same space with slower traffic keeping right and faster traffic passing on the left. Regardless, more "tools" are needed in the pathway designer's "toolbox". Supporting Documentation: Draft AASHTO Guide for the Development of Bicycle Facilities, Sections 5.1 and 5.2.1		
13E-036	Chapter 1000; Index 1003.1 (1)		Draft Text: "The minimum paved width for a two-way bike path shall be 10 feet." We agree that 10 feet is a good minimum for a two-way path. However, the HDM should allow for 8' minimum in some circumstances. Recommend incorporating text from the draft AASHTO Bike Guide that does a good job explaining this: "In very rare circumstances, a reduced width of 8 feet (2.4 m) may be used where the following conditions prevail: > Bicycle traffic is expected to be low, even on peak days or during peak hours. > Pedestrian use of the facility is not expected to be more than occasional. > Horizontal and vertical alignments provide safe and frequent passing opportunities. > The path will not be regularly subjected to maintenance vehicle loading conditions that would cause pavement edge damage." Supporting Documentation: Draft AASHTO Guide for the Development of Bicycle Facilities, Section 5.2.1	Comment did not result in a HDM change.	An 8-foot width can be used with an mandatory exception. As appropriate, and if they exist at the project location, the reasons/examples stated can be used as documentation for granting the exception.
13E-037	Chapter 1000; Index 1003.1 (1)		Draft Text: A minimum 2-foot wide shoulder area, composed of the same pavement material as the path or decomposed granite, free of vegetation, shall be provided adjacent to the traveled way of the path" This 2-foot wide shoulder area is important, but this language is too restrictive since it only offers the same material as the path or decomposed granite. At the very least it should include other paved surfaces - a very effective way of constructing a long-lasting path is to use an asphalt path with flush concrete curbs, that could make up a portion of this graded area. Additionally, the "free of vegetation" language precludes vegetated graded areas such as even grass, which can be maintained as a recoverable surface; for example an asphalt path, a 6" to 12" flush concrete curb, and then grass; this results in a very recoverable surface and a long-lasting installation. Lastly, some guidance should be provided here as to the slope of this shoulder area. The AASHTO Bike Guide recommends 6:1 slope maximum. Supporting Documentation: 1999 AASHTO Guide for the Development of Bicycle Facilities, pages 36; Draft AASHTO Guide for the Development of Bicycle Facilities, Section 5.2.1	Comment combined with other comments and resulted in a HDM change.	
13E-038	Chapter 1000; Index 1003.1 (1)		Draft Text: "If all or part of the shoulder is paved, it is to be delineated from the traveled way of the path with an edgeline." This isn't necessary if the paving material of the shoulder is different. Suggested wording: "If all or part of the shoulder is paved with the same material as the path, it is to be delineated from the traveled way of the path with an edgeline."	Comment resulted in a HDM change.	
13E-039	Chapter 1000; Index 1003.1 (1)		Draft Text: "Where the paved width is wider than the minimum required, the unpaved shoulder area may be reduced proportionately." This seemingly contradicts the earlier statement requiring an edgeline for the shoulder. And it seems that a shoulder should be used on every path regardless of width. This seems like carte blanche to just widen the path and eliminate the shoulder, which may not be appropriate. Suggest eliminating this sentence.	Comment resulted in a HDM change.	

13E-040	Chapter 1000; Index 1003.1 (1)		Draft Text: "If there is an adjacent pedestrian walkway, the edge of the traveled way of the bicycle path shall be separated from the pedestrian walkway by a minimum width of 5 feet of unpaved material." This is a very strong "shall" statement, that isn't supported by other design guidelines including the draft AASHTO Guide. Separation should be encouraged, but to make it a requirement is a bit too much. Additionally, this contradicts the statement in the previous paragraph that states that a wider shoulder area can serve as a running or walking path; which seems appropriate. We suggest that the document encourage separation but not require it. The document should also call for a minimum width of an adjacent or separated pedestrian path. The draft AASHTO bike guide calls for 15 feet total (10 feet for bicyclists and 5 feet for pedestrians (10 plus 6 would be even better). Supporting Documentation: Draft AASHTO Guide for the Development of Bicycle Facilities, Section 5.2.1	Comment combined with other comments and resulted in a HDM change.	
13E-041	Chapter 1000; Index 1003.1 (1)		Draft Text: "The 5-foot area of unpaved material may include the bicycle path shoulder, or a continuous barrier with a minimum height of 42 inches to deter path and walkway users from using the combined paths as a single facility." Suggest deleting the requirement for a vertical barrier between pedestrian and bicycle pathways and add optional guidance for visual or landscaping barriers to emphasize separation in such cases where the bicycle and pedestrian pathways are adjacent.	Comment combined with other comments and resulted in a HDM change.	
13E-042	Chapter 1000; Index 1003.1 (2)		Draft Text: "If a wide path is paved contiguous with a continuous fixed object (e.g., fence, wall, building), a 4-inch white edge line, 2 feet from the fixed object, is recommended to minimize the likelihood of a bicyclist hitting it." The word "wide" needs to be definied in this context. Additionally, it should be clarified if this edge line is recommended on bridges, since the bridge rail is a continuous fixed object.	Comment combined with other comments and resulted in a HDM change.	The word "wide" was deleted.
13E-043	Chapter 1000; Figure 1003.1B		Draft Text: "10' (Min) Unpaved" between edges of pavement This change from 5 to 10 feet in the HDM seems to have been done arbitrarily, without the support of research. Indeed greater separation may be desirable, but doubling the minimum separation seems like overkill and severely limits the applicability of multi-use pathways in more constrained right of way contexts. Suggest retaining the original requirement for only 5' of setback. Supporting Documentation: 1999 AASHTO Guide for the Development of Bicycle Facilities, pages 35; Draft AASHTO Guide for the Development of Bicycle Facilities, Section 5.2.2	Comment combined with other comments and resulted in a HDM change.	
13E-044	Chapter 1000; Index 1003.1 (4)		Draft Text: "It is discouraged to combine a bicycle path with a crosswalk at the intersection of two roadways." What is the alternative to this arrangement? This sentence seems to contradict an existing sentence in the next paragraph, which states, "When crossing an arterial street, the crossing should either occur at the pedestrian crossing, where motorists can be expected to stop, or at a location completely out of the influence of any intersection to permit adequate opportunity for bicyclists to see turning vehicles." This existing sentence is much better than the new one. Recommend removing the sentence shown (above) and using the existing sentence, perhaps modified to encourage the location out of the influence of the intersection.	Comment combined with other comments and resulted in a HDM change.	

13E-045	Chapter 1000; Index 1003.1 (4)		Draft Text: "Bicycle versus motor vehicle collisions typically occur at intersections, when bicyclists enter pedestrian crosswalks." Collisions between bicyclists and motor vehicles occur in many different ways - this sentence implies that this is the predominate cause of bike/MV crashes. Where is the research that supports this statement? Recommend either removing the sentence or changing "typically" to either "sometimes" or "often", depending on what is supported by research.	Comment combined with other comments and resulted in a HDM change.	
13E-046	Chapter 1000; Index 1003.1 (4)		Draft Text: "See the California MUTCD, Section 9B.03 and Figure 9B-7 for guidance on signals and signs for right of way assignment of bicycle path intersections." Reference to CA MUTCD Section 9B.03 is very appropriate, and this supports removal of the two existing sentences that contradict that section (see earlier comment). However, Figure 9B-7 does NOT provide guidance on right-of-way assignment, rather it is just an EXAMPLE figure of signing and marking for shared use paths. Overuse of this figure has resulted any DOZENS if not HUNDREDS of path/roadway intersections in California being signed incorrectly, with improper right-of-way assignment. The draft AASHTO Bike Guide includes four similar figures to show the four different ways that signs can be placed at path/roadway intersections. We recommend that "and Figure 9B-7" should be removed from the sentence. Additionally, the words "signals and" should be removed from the sentence since CA MUTCD Part 9 does not address the use of signals to assign right-of-way. The words "signs for" are also unnecessary in this context. Supporting Documentation: CA MUTCD Section 9B.03; Draft AASHTO Guide for the Development of Bicycle Facilities, Exhibits 5.17, 5.18, 5.19, and 5.20.	Comment did not result in a HDM change.	References still desired. Earlier in this section, the text recommends that the designer discuss the proposed sign details with their Traffic Liaison who should be aware of the use of the California MUTCD.
13E-047	Chapter 1000; Index 1003.1 (5)		Draft Text: "The minimum separation between the edge of pavement of a bicycle path and the edge of pavement or curb of a road or street shall be 10 feet." This change from 5 to 10 feet in the HDM seems to have been done arbitrarily, without the support of research. Indeed greater separation is desirable, but doubling the minimum separation seems like overkill. The AASHTO Bike Guide and other documents nationally use 5-foot minimum separation. Is there research supporting the change from 5 to 10 feet? Recommend changing this back to 5' minimum. Supporting Documentation: 1999 AASHTO Guide for the Development of Bicycle Facilities, pages 35; Draft AASHTO Guide for the Development of Bicycle Facilities, Section 5.2.2	Comment combined with other comments and resulted in a HDM change.	
13E-048	Chapter 1000; Index 1003.1 (5)		Draft Text: "Bike paths immediately adjacent to streets and highways are not recommended." This statement is unwarrantedly unequivocal and not based on research. The AASHTO Bike Guide is much more nuanced about this issue, stating that independent alignments are preferable, clearly laying out the challenges with paths next to roadways, and then identifying situations where paths next to roadways may be considered. We recommend expanding on this issue somewhat. Additionally, the HDM should discussing Cycle Tracks, since it is quite likely that many jurisdictions are going to want to try this type of facility in the near future. We recommend that the HDM provide information on cycle tracks, their benefits and challenges, cautionary notes, and design issues that must be addressed. Supporting Documentation: Draft AASHTO Guide for the Development of Bicycle Facilities, Section 5.2.2; NACTO Urban Bikeway Design Guide	Comment(s) beyond the scope of this HDM update.	On hold because their use is being debated within the bicycle community. Cycle tracks are currently not in favor with the California Bicycle Advisory Committee.

13E-049	Chapter 1000; Index 1003.1 (13)		Draft Text: "At unpaved highway or driveway crossings of bicycle paths, the highway or driveway should be paved a minimum of 10 feet on each side of the crossing to reduce the amount of gravel being scattered along the path by motor vehicles." The draft HDM includes a recommendation of paving back 15 feet for driveways in Index 205.4. This 15' dimension should be used consistently here as well.	Comment resulted in a HDM change.	
13E-050	Chapter 1000; Index 1003.1 (14)		Draft Text: "For proper drainage, the surface of a bike path should have a cross slope of 2 percent." A 1 percent cross slope is sufficient for drainage, and flatter cross slopes are better for wheelchair users and hand cyclists. An advantage of allowing a 1% minimum is that it provides for a cross slope tolerance between 1% and 2% instead of a strict specification of exactly 2%. This is much easier to provide in the real world. We recommend a 1 percent minimum and 2 percent maximum cross slope be shown here. Supporting Documentation: Draft AASHTO Guide for the Development of Bicycle Facilities, Section 5.2.6. Supported by recent City of Berkeley pathway design experience.	Comment combined with other comments and resulted in a HDM change.	
13E-051	Chapter 1000; Index 1003.1 (15)		Draft Text: "Also, these barriers may be considered only where safety and other issues posed by actual unauthorized vehicle entry are more serious than the safety and access issues posed to bicyclists, pedestrians and other authorized path users." For clarity, we recommend adding, "by the barriers" to the end of the sentence.	Comment resulted in a HDM change.	
13E-052	Chapter 1000; Index 1003.1 (15)		Draft Text: "Design the path entry so it does not look like a vehicle access and makes intentional access by unauthorized users more difficult. Dividing a path into two one-way paths prior to the intersection, separated by low plantings or other features not conducive to motor vehicle use, can discourage drivers from entering and reduce driver error." We recommend changing "driver" to "motorist" in this section for clarity.	Comment resulted in a HDM change.	
13E-053	Chapter 1000; Index 1003.1 (15)		Draft Text: "Posts and gates shall be a minimum of 36 inches high. and shall not be more than 4 inches in diameter." 36 inches is perhaps too low to easily be seen, the draft AASHTO Bike Guide recommends 40 inches. Additionally, bollards that are too small in diameter can't be seen well. The AASHTO Bike Guide recommends a 4" diameter MINIMUM, not maximum. We suggest that a minimum size of bollards should be 3 inches, or the same 4 inches recommended by the draft AASHTO Guide. If a maximum is to be set, perhaps it should be 6 inches or 8 inches. Supporting Documentation: Draft AASHTO Guide for the Development of Bicycle Facilities, Section 5.3.5	Comment combined with other comments and resulted in a HDM change.	
13E-054	Chapter 1000; Index 1003.3		Draft Text: "Class III facilities are shared facilities, either with motor vehicles on the street, or with pedestrians on sidewalks, and in either case bicycle usage is secondary." Bicycle usage of roadways is not secondary to motor vehicle usage of roadways. We strongly recommend that this statement be taken out of the HDM, unless it is supported by either the California Vehicle Code or the California Streets and Highways Code.	Comment resulted in a HDM change.	

13E-055	Chapter 1000; Index 1003.3		Draft Text: "For pavement marking guidance, see the California MUTCD." This sentence should probably specifically refer to Part 3 and Chapter 9C of the California MUTCD. Supporting Documentation: CA MUTCD Part 3 and Chapter 9C	Comment combined with other comments and resulted in a HDM change.	
13E-056	Chapter 1000; Index 1003.3	General	The HDM needs a specific section on Bicycle Boulevards, which could be considered a subcategory of Class III Bikeways. Supporting Documentation: Berkeley Bicycle Boulevard Design Guidelines	Comment(s) beyond the scope of this HDM update.	Bicycle boulevards are a community decision and tend to be located off the State highway system. Therefore, local community guidelines apply.
13E-057	Chapter 1000; Index 1003.5 (3)		Draft Text: "For roads where a skew is unavoidable, the shoulder or bike lane should be widened, to permit bicyclists to cross at right angles (see Figure 1003.5)." Recommend the following change for clarity: "For roads that cross tracks at where a skew is unavoidable, the shoulder or bike lane should be widened, to permit bicyclists to cross at right angles (see Figure 1003.5)." The other problem is that the figure for bike lanes or shoulders is now included in Chapter 400. We recommend that this figure, along with all other Class II Bikeway guidance be moved back to or replicated in Chapter 1000 - it's new location in Chapter 400 is about intersections, not grade crossings, so it seems pointless to have it there.	Comment resulted in a HDM change.	
13E-058	Chapter 1000; Figure 1003.5		Draft Text: "45° Minimum angle. If less, a stop sign should be placed." This is an impractical recommendation. Cyclists are unlikely to stop for this stop sign and may not need to for safety reasons. And in fact, stopping won't necessarily make it less likely that cyclists will fall when they hit the tracks - it could actually make it more likely. Cyclists will instead take their own line within the existing paved width of the path to come as close to 90 degrees as they feel necessary for safety - thus all cyclists in both directions will want the same line. Perhaps a recommendation to widen the path at the crossing would be better. Or just leave out the stop sign recommendation and simply state that the 45 is the minimum angle.	Comment combined with other comments and resulted in a HDM change.	

Commentor 14E: **Tran Tran, Associate Engineer**
Organization: **City of Irvine - Department of Public Works**

Comment Number	Chapter & Index	Index Title	Comment/Issue	Resolution of Comment/Issue	Commentary, as necessary, on Resolution of Comment/Issue
14E-001	Foreword – Purpose		Typo (middle of 2nd Paragraph) – “If their choice is to no not to use or adopt…”	Comment resulted in a HDM change.	
14E-002	Topic 105; Index 105.2	Sidewalks and Walkways	page 100-92: The HDM indicates the minimum width of a sidewalk should be 8 feet directly adjacent to a curb and 6 feet when separated by a planting strip. COMMENT: The City of Irvine standard for sidewalk width is 4.5 feet adjacent to a curb and 4 feet when separated by a planting strip. This new proposal will cause additional R/W costs and there are cases where this cannot be accomplished. This exceeds the minimum for ADA requirements. Is this required on bridges as well (curb adjacent sidewalks)? Should there be a reference to section 208.4 for bridge scenarios?	Commentary, no response required.	A 6 foot width was chosen because it does not require the passing spaces that a 5 foot width would require to comply with accessibility standards. A cross reference to Index 208.4 is already in the text.
14E-003	Topic 206; Index 206.2	Pavement Widening	page 200-166: (2) Turning, Ramp, and Speed Change Lanes The HDM indicates that transitions for lane additions, either for left or right turns should typically occur over a length of 120 feet. Lengths shorter than 120 feet are acceptable where design speeds are below 45 miles per hour. COMMENT: The City of Irvine currently uses 90 foot transition for a single left turn lane on roadways with speed in excess of 45 mph. The requirement seems to be for state highways and should consider on/off-ramp cases where multiple signals will calm traffic to allow for a 90-foot transition length. Could this be a 120-foot preference and a 90-foot minimum?	Commentary, no response required.	120 feet is guidance only. Thus, 90 feet is acceptable if conditions warrant.

14E-004	Topic 208; Index 208.4	Bridge Sidewalks	page 200-173: The HDM indicates that the minimum width of a bridge sidewalk shall be 6 feet. The recommended width should be 8 feet for pedestrian comfort. Bridges in areas with high levels of pedestrian activity may need to be greater than 8 feet wide. COMMENT: The City of Irvine currently has been using 5 feet for sidewalks on bridges and feels that the extra foot has additional cost implications. Our current standard meets minimum ADA requirements and this requirement by Caltrans seems unnecessary.	Commentary, no response required.	A 6 foot width was chosen because it does not require the passing spaces that a 5 foot width would require to comply with accessibility standards.
14E-005	Topic 301; Index 301.2	Class II Bikeway (Bike Lane) Lane Width	page 300-198: (1) General Class II bikeways (bike lanes): > The HDM indicates that the minimum bike lane width shall be 4 feet, except where: > Posted speeds are greater than 40 miles per hour, a 6-foot bike lane shall be provided, or > In urban, suburban, and rural main street place types, a 5-foot bike lane shall be provided. COMMENT: The City of Irvine has used in the past 5 foot wide on-street bike lanes with vehicle speeds greater than 40 mph (Jamboree and Main Street are examples). We would like to see the exception to be at 60 mph or greater to require 6-foot bike lanes.	Comment did not result in a HDM change.	A high speed environment is typically defined as being 45 mph or greater. The choice of these place types was chosen because they are associated with higher bicycle volumes.
14E-006	Topic 305; Index 305.1	Width	page 300-216: The HDM indicates that where pedestrians are expected to cross 4 or more lanes at a signalized intersection a minimum 6 foot wide pedestrian refuge island should be provided. COMMENT: The City of Irvine feels that to have pedestrians waiting in the center median with high speed vehicle traffic on both sides is not a good design.	Comment combined with other comments and resulted in a HDM change.	
14E-007	Topic 405; Index 405.2 (2)	Design Elements	page 400-278: Lane Width – The HDM is indicating that the lane width for single or double left-turn lanes on State highways shall be 12 feet with posted speeds greater than 40mph. Where large trucks are not expected and posted speeds are less than 40 mph the lane width may be reduced to 11 feet. COMMENT: The current left-turn lane width for single or double left-turn lanes required by the City of Irvine is 10 feet. This will have an impact on future street right-of-way requirements, development and street widening cost. We are unaware of any problems with the 10 foot wide left turn lanes the City is currently using. We are requesting to remove the proposed requirement of 11-12 foot wide lanes. We desire to have 10 foot wide left turn lanes.	Comment did not result in a HDM change.	10 foot wide lanes are not desirable on the State highway system because of the likelihood that trucks will be using the highway. 11 foot lanes, as proposed in this HDM change, will be acceptable without a Mandatory Design Exception.
14E-008	Topic 1001; Index 1001.4 (2)	Role of Bikeways	page 1000-730: The HDM indicates that bicycle-sensitive loop detection be utilized. COMMENT: Suggest adding video detection. Thus suggested wording is as follows: "…. and installation of bicycle-sensitive loop detectors or video detection at signalized intersections."	Comment did not result in a HDM change.	The use of video detection is a California MUTCD topic and not a HDM topic. The use of loop detectors was added to the text because of the recent signing of legislation and change to State law.
14E-009	Topic 1003; Index 1003.1	Class I Bikeways (Bike Paths)	page 1000-732: The HDM indicates that a minimum 2-foot wide shoulder area, composed of the same pavement material as the path or decomposed granite, free of vegetation, shall be provided adjacent to the traveled way of the path. COMMENT: The City of Irvine is concerned with this requirement adding cost to the construction of the bikeway which may make the construction cost of some projects prohibitive. Please delete the requirement that the minimum 2-foot wide shoulder area be composed of the same pavement material as the bikeway or decomposed granite. This requirement is unnecessary and it will potentially make bikeway projects cost prohibitive due to increased maintenance and right of way costs. This is also a less sustainable approach in that you are requiring more impervious pavement.	Comment combined with other comments and resulted in a HDM change.	
14E-010	Topic 1003; Index 1003.1	Class I Bikeways (Bike Paths)	page 1000-732: The HDM indicates that if there is an adjacent pedestrian walkway, the edge of the traveled way of the bicycle path shall be separated from the pedestrian walkway by a minimum width of 5 feet of unpaved material. COMMENT: The City of Irvine's Class I bikeway employs mixed use (pedestrians/bicycle) within the 11-foot wide trail with 2-foot leveled shoulders on each side. Caltrans' proposal will require added R/W and construction costs. In addition the additional impervious pavement will make the trail a less sustainable project. How is this treated at undercrossings/overcrossings? This could possibly stop a project because the additional cost may outweigh the benefits.	Commentary, no response required.	

14E-011	Topic 1003; Figure 1003.1B	Typical Cross Section of Class I Bikeway (Bike Path) Parallel to Highway	Figure 1003.1B [page 1000-735] and (5) Separation Between Bike Paths and Highways [page 1000-736]: The HDM indicates in Figure 1003.1B and in the text that the distance between edge of pavement and bikeway shall be a minimum of 10 feet. The width indicated in previous figure 1003.1B between edge of pavement and bikeway is 1.5M (5 feet). COMMENT: The City of Irvine is concerned that the above proposal will require added R/W, maintenance, and construction costs. Please delete this requirement because it is unnecessary and may prohibit a funded project from moving forward due to these constraints.	Comment combined with other comments and resulted in a HDM change.	
14E-012	Topic 1003; Index 1003.1 (5)	Separation Between Bike Paths and Highways	page 1000-736: The HDM indicates separation less than 10 feet from the edge of the shoulder shall include a minimum 48 inches high continuous barrier to prevent bicyclists from encroaching onto the highway. COMMENT: The City of Irvine is concerned that the above requirement will require added R/W, maintenance, and construction costs. Please delete this requirement because it is unnecessary and may prohibit a funded project from moving forward due to these constraints. What is the requirement when curb and gutter is used at the edge of the pavement? Can this requirement allow for a curb adjacent bike path? Providing a 48 inch vertical barrier seems excessive and should only be used in areas where there is no curb and gutter and speed limits exceed 40 MPH.	Comment combined with other comments and resulted in a HDM change.	

Commentor 15E: **Les Miklosy, Chair ("submitted with neither the approval or disapproval of the City Manager or Council")**

Organization: **City of Laguna Beach - Complete Streets Policy Committee**

Comment Number	Chapter & Index	Index Title	Comment/Issue	Resolution of Comment/Issue	Commentary, as necessary, on Resolution of Comment/Issue
15E-001	Chapter 20; Topic 21; Index 21.2	Sign Route Numbers (5) Scenic Routes	Add Scenic Routes. The Pacific Coast Highway shared by beach cities from San Diego to Long Beach passing through Laguna Beach is very heavily traveled by cyclists. A Scenic bike route signage would be appropriate.	Comment did not result in a HDM change.	This section of the HDM discusses the signing convention used on the State highway system. Highway types, such as Scenic Highways, are discussed in Topic 62, Index 62.9.
15E-002	Chapter 40; Topic 43; Index 43.2	California Stewardship and Oversight agreement with FHWA	Consider PCH as a High Profile Project for a beach cities cycling connector through Laguna Beach.	Commentary, no response required.	
15E-003	Chapter 40; Topic 43; Index 43.3	Federal Aid Programs Congestion Mitigation and air quality improvement program	PCH route through Laguna Beach serves SOV vehicles exclusively. A balanced mobility plan here would reduce CO2 and qualify for CMAQ funding.	Commentary, no response required.	
15E-004	Chapter 40; Topic 43; Index 43.4	Bridge Replacement and Rehabilitation Program	The Aliso Bridge is a underutilized pedestrian- only footbridge that doesn't serve the Montage Resort or the Albertsons Shopping Center, yet it's design impedes PCH traffic under the bridge for all passers except motorized traffic. This bridge is a candidate for BRP	Commentary, no response required.	
15E-005	Chapter 60; Topic 62; Index 62.1	(2) Bike Path	A conventional bike path "completely separated lane" is not practiced in reality. (1) Cars frequently park in bikelanes (2) bike lanes on roadways are shared by motor traffic. (3) Only Class I bikelanes are dedicated bike only lanes separated from motor traffic.	Comment combined with other comments and resulted in a HDM change.	
15E-006	Chapter 60; Figure 62.2	Type of Structure	No bike or pedestrian provisions are shown in any of these figures of highway infrastructure.	Commentary, no response required.	These features are not shown because only trying to communicate/explain terminolgy being defined.
15E-007	Chapter 60; Topic 62.5	(7) Safety Roadside Rest Area System	Emergency spares in roadside vending machines (tubes, patch kit)	Commentary, no response required.	
15E-008	Chapter 60; Index 62.8	(8) Roadside Furniture	Provide shelter for cyclists, bicycle racks	Comment did not result in a HDM change.	This is now (14). The department prefers the use of the term "street furniture" versus "roadside furniture". The additional items suggested were not added because the items listed are only a sampling of what could be listed.
15E-009	Chapter 60; Index 62.8	Traffic	The term "traffic" should be defined first in order to clarify it's subsequent use in later paragraphs.	Comment did not result in a HDM change.	While not desireable, the term Traffic is defined within this section.
15E-010		(1) AADT	These metrics measure Vehicle data not User data. If Complete Streets Policy is adopted then these metrics should measure street users, as they are the metrics are a measure of motor vehicles not Traffic as defined in paragraph (14)	Comment(s) beyond the scope of this HDM update.	Once the Department formally adopts the HCM, the HDM will be modified appropriately. Plus, California Strategic Highway Safety projects have been initiated with the intent of improving data on bicyclists and pedestrians.
15E-011		(2) Delay	ditto	Comment(s) beyond the scope of this HDM update.	Once the Department formally adopts the HCM, the HDM will be modified appropriately. Plus, California Strategic Highway Safety projects have been initiated with the intent of improving data on bicyclists and pedestrians.
15E-012		(3) Density	ditto	Comment(s) beyond the scope of this HDM update.	Once the Department formally adopts the HCM, the HDM will be modified appropriately. Plus, California Strategic Highway Safety projects have been initiated with the intent of improving data on bicyclists and pedestrians.

15E-013		(4) Design Vehicles	ditto	Comment(s) beyond the scope of this HDM update.	Once the Department formally adopts the HCM, the HDM will be modified appropriately. Plus, California Strategic Highway Safety projects have been initiated with the intent of improving data on bicyclists and pedestrians.
15E-014		(5) Design Volume	ditto	Comment(s) beyond the scope of this HDM update.	Once the Department formally adopts the HCM, the HDM will be modified appropriately. Plus, California Strategic Highway Safety projects have been initiated with the intent of improving data on bicyclists and pedestrians.
15E-015		(8) Level of Service LOS	If we continue to count cars instead of people, then people will never get equal representation on public highways. Count the Users of Topic 62.10 not vehicles.	Comment(s) beyond the scope of this HDM update.	Once the Department formally adopts the HCM, the HDM will be modified appropriately. Plus, California Strategic Highway Safety projects have been initiated with the intent of improving data on bicyclists and pedestrians.
15E-016		(9) Managed Lanes	ditto	Comment(s) beyond the scope of this HDM update.	Once the Department formally adopts the HCM, the HDM will be modified appropriately. Plus, California Strategic Highway Safety projects have been initiated with the intent of improving data on bicyclists and pedestrians.
15E-017		(11) Running Time	ditto	Comment(s) beyond the scope of this HDM update.	Once the Department formally adopts the HCM, the HDM will be modified appropriately. Plus, California Strategic Highway Safety projects have been initiated with the intent of improving data on bicyclists and pedestrians.
15E-018		(12) Spacing	ditto	Comment(s) beyond the scope of this HDM update.	Once the Department formally adopts the HCM, the HDM will be modified appropriately. Plus, California Strategic Highway Safety projects have been initiated with the intent of improving data on bicyclists and pedestrians.
15E-019		(13) Speed	ditto	Comment(s) beyond the scope of this HDM update.	Once the Department formally adopts the HCM, the HDM will be modified appropriately. Plus, California Strategic Highway Safety projects have been initiated with the intent of improving data on bicyclists and pedestrians.
15E-020		(16) Volume	ditto	Comment(s) beyond the scope of this HDM update.	Once the Department formally adopts the HCM, the HDM will be modified appropriately. Plus, California Strategic Highway Safety projects have been initiated with the intent of improving data on bicyclists and pedestrians.
15E-021		(18) Ramp Metering	ditto	Comment(s) beyond the scope of this HDM update.	Once the Department formally adopts the HCM, the HDM will be modified appropriately. Plus, California Strategic Highway Safety projects have been initiated with the intent of improving data on bicyclists and pedestrians.
15E-022	Topic 62.10 Users	(1) thru (11)	These 11 are the defined users of public highways, only item 11 Vehicles are being measured in metrics per Topic 62.8 Traffic	Comment(s) beyond the scope of this HDM update.	Once the Department formally adopts the HCM, the HDM will be modified appropriately. Plus, California Strategic Highway Safety projects have been initiated with the intent of improving data on bicyclists and pedestrians.
15E-023	Topic 81.1 Philosophy	(a) Need for safe and efficient transportation for all users	The design philosophy for highways states "Proper consideration of these items requires that a facility be viewed from the perspectives of the user", the performance metrics as stated do not meet this intent.	Comment(s) beyond the scope of this HDM update.	Once the Department formally adopts the HCM, the HDM will be modified appropriately. Plus, California Strategic Highway Safety projects have been initiated with the intent of improving data on bicyclists and pedestrians.
15E-024	Topic 81.2 Highway Context		"the designer needs to have an understanding of the area surrounding the highway and the users of the highway, its function within the regional and State transportation systems, and the level of access control needed." The Pacific Coast Highway serving the beach cities from San Diego to San Luis Obisbo has thousands of cyclists using this route. Infrastructure for them is spotty, inconsistent. Need uniformity of application here.	Commentary, no response required.	
15E-025	Table 82.1A Mandatory Standards	Chapter 1000 Bikeway Planning and Design	Caltrans holds exclusive jurisdiction here, how about a bike authority? Calbike, LAbike, Alta Design, League of American Bicyclists	Commentary, no response required.	
15E-026	Chapter 100 Basic Design Policies	Topic 101.1 Selection of Highway Design Speed	"On those projects observed motor vehicle speed (operating speed) is the primary factor requiring consideration by the designer." The operating speed is for motor vehicles, not all street users per Topic 62.10. A design speed based on vehicle speed will be compatible for all other modes of mobility.	Commentary, no response required.	
15E-027	Table 101.2 Relation of Conditions to Design Speed	Topic 102 Highway Capacity	If the Level of Service includes 4 modes of mobility, then the speeds in table 101.2 should necessarily go down. Here they remain the same.	Comment combined with other comments and resulted in a HDM change.	
15E-028	Topic 110 Special Considerations	110.3 Control of Air Pollution	Establish a credit system for those low polluters who travel California highways carbon free. Tax incentives are useful here to encourage mobility with low-carbon alternatives.	Commentary, no response required.	
15E-029	Topic 300 Geometric Cross Section	301.2 Class II Bikeway	There is no provision in the HDM for "Sharrows" - a multi-use shared bicycle lane as used on surface streets in some cities, Long Beach, Newport Beach, planned for Lagna Beach. Need a category of section for multi-use shared lanes. Sharrows are a design solution where on-street parking may not be removed and traffic calming is appropriate.	Comment did not result in a HDM change.	Sharrows are considered an operational feature. Therefore, the California MUTCD needs to be consulted for guidance on their use.

Commentor 16E: **Chris Johansen, City Engineer**
Organization: **City of La Habra**

Comment Number	Chapter & Index	Index Title	Comment/Issue	Resolution of Comment/Issue	Commentary, as necessary, on Resolution of Comment/Issue

16E-001	Forward	Purpose	2nd paragraph; Use "not" in this sentence: If there choice is **no** to use or adopt this manual	Comment resulted in a HDM change.	
16E-002	Chapter 60; Index 62.5 (8)	Street Furniture	add "bus shelters" to the list	Comment did not result in a HDM change.	A bus shelter is not considered to be street furniture. See Index 108.2 Transit Loading Facilities for guidance on shelters.
16E-003	Chapter 200; Figure 208.10B	Combination Vehiclular Barriers and Pedestrian Railings for Bridge Structures	Add space between "for" and "Bridges"	Comment resulted in a HDM change.	
16E-004	Chapter 300; Index 303.1 (j)		Last paragraph in Index 303.1 seems to conflict. (j) says to use curb extensions under 40 mph. The lower paragraph (last paragraph in Index 303.1) states that curb should be avoided under 40 mph?	Comment resulted in a HDM change.	
16E-005	Chapter 400; Index 403.13	Precautions	First bullet has typo in it. "cubed" should be "curbed"	Comment resulted in a HDM change.	
Commentor 17E:	**Iris Starr, Manager of Infrastructure Plans and Programming**				
Organization:	**City of Oakland**				

Comment Number	Chapter & Index	Index Title	Comment/Issue	Resolution of Comment/Issue	Commentary, as necessary, on Resolution of Comment/Issue
17E-001	Overall		we strongly support Caltrans' efforts to integrate Complete Streets concepts into highway design and to differentiate highway design requirements according to the surrounding context of each highway corridor.	Commentary, no response required.	
17E-002	Overall		the HDM design topics should more consistently recognize the multimodal needs of Urban Main Streets that Oakland has such as International Boulevard (SR-185), 73rd Avenue (SR-77), Tunnel Road (SR-13), the Webster/Harrison couplet between Oakland and Alameda (SR-260) san Pablo Avenue (SR-123), Fruitvale Avenue, MacArthur Boulevard, High Street, Telegraph Avenue, and Broadway.	Commentary, no response required.	
17E-003	Overall		Oakland wishes to express concurrence with San Francisco's clear understanding of the issues and recommendations for changes to the draft HDM. We would very much like to see that the changes recommended by San Francisco are enacted. Attachment: July 8, 2011 San Francisco County Transportation Authority comments on the draft HDM	Commentary, no response required.	
17E-004	Overall		The City of Oakland agrees that areas in the HDM draft where more flexibility is needed for these Urban Main Streeets in lowering minimum requirements without the burden of obtaining approval for design exceptions include: 1. Design speed (Topic 101) which affects minimum sight distance requirements 2. Minimum required travel and turn lane widths (Topic 301, 405) 3. Minimum required clearances and traffic controls for Bus Rapid Transit (Topics 108.4, 309) 4. Minimum required shoulders, which can affect the ability to provide on-street parking and curb bulb-outs (Topics 302, 303.4) 5. Minimum required dimensions for pedestrian refuge islands (Topics 403.7, 405.4)	Commentary, no response required.	The design exception process can not be eliminated for 13 controling criteria (see Index 82.1 (5). However, guidance related to some of these standards have been changed in this draft to provide more flexibility.

Commentor 18E: Intentionally left blank.					
Commentor 19E:	**Ian Pari**				
Organization:	**City of Santa Clarita**				

Comment Number	Chapter & Index	Index Title	Comment/Issue	Resolution of Comment/Issue	Commentary, as necessary, on Resolution of Comment/Issue
19E-001	Chapter 300; Topic 301.2	Class II Bikeway (Bike Lane) Lane Width	The recommended 6 foot and 5 foot bike lane widths should be specified as minimums to allow local jurisdictions the flexibility of providing wider bicycle lanes.	Comment did not result in a HDM change.	Local agencies may chose to go wider than these dimensions. See Index 82.1 (1).

19E-002	Chapter 300; Topic 305.1	Median Standards – Width	Regarding the text: "Where pedestrians are expected to cross 4 or more lanes at a signalized intersection a minimum 6 foot wide pedestrian refuge island should be provided. Where raised medians are provided for access management, they should provide access through them for pedestrians and bicyclists." The first option should be to provide adequate pedestrian phase timing to enable pedestrians to cross an entire street in one movement. In general, the design standards should not encourage pedestrians to wait in medians while traffic is flowing adjacent to them.	Comment did not result in a HDM change.	Agree. This was provided as "refuge" in case they can not cross in one phase. Signal design guidance is provided by the Division of Traffic Operations and in the Californai MUTCD.
19E-003	Chapter 400; Figure 403.6B		Illustrations (1), (2), and (4) depict the bike lane with solid striping all the way to the crosswalk. Solid lines may confuse motorists or deter proper weaving movements. Dashed striping or no striping for a specified distance before the crosswalk or stop bar would encourage weaving at the appropriate location.	Comment combined with other comments and resulted in a HDM change.	
19E-004	Chapter 400; Index 403.7	Refuge Areas	The recommended minimum width of a pedestrian refuge area of 4 feet conflicts with Topic 305.1, which states that the minimum width of a pedestrian refuge area shall be 6 feet.	Comment combined with other comments and resulted in a HDM change.	
19E-005	Chapter 1000; Index 1003.1	Class I Bikeways (Bike Paths) – Widths and Cross Slopes	The requirement of a 5-foot separation between a bike path and a pedestrian walkway is excessive. The potential increase in cross section of any roadway with both a sidewalk and a bike path could result in significant additional right-of-way costs either to the local jurisdiction or to the development community. There are situations in which a separation of less than five feet would be adequate, and this should be determined on a case-by-case basis.	Comment combined with other comments and resulted in a HDM change.	
19E-006	Chapter 1000; Index 1003.1	Class I Bikeways (Bike Paths) – Separation Between Bike Paths and Highways	The requirement of a 48-inch high continuous barrier if the separation between the bike path and the edge of pavement is less than 10 feet does not account for intersections, alleys, and driveways. This clarification should be included in the text.	Comment combined with other comments and resulted in a HDM change.	Edited guidance on separation of these facilities to clarify intentions. However, a driveway is not an intersection so guidance related to them exists separately and has been edited.

Government Planning Organizations, Air Quality Districts, etc.

Commentor 20E: **Karen Fink (email dated 7-8-11)**
Organization: **Tahoe Regional Planning Agency, Tahoe Metropolitan Planning Organization**

Comment Number	Chapter & Index	Index Title	Comment/Issue	Resolution of Comment/Issue	Commentary, as necessary, on Resolution of Comment/Issue
20E-001	General		Overall we are ery pleased and impressed with the changes made to the HDM to incorporate Complete Streets concepts. We noted the bicycle, pedestrian, and transit-related language is integrated throughout the document and like that the language recognizes the multipurpose aspect of California roadways. We incourage rapid adoption of the changes so that they can provide additional support to our cooperation with Caltrans on incorporating Complete Streets concepts into our local roadway projects.	Commentary, no response required.	
20E-002	Chapter 1000; Topic 1003; Index 1003.1 (5)	Separation Between Bike Path and Highways	Edits to Draft Text: The minimum separation between the edge of pavement of a bicycle path and the edge of pavement or curb of a ~~road or street~~ shall be 10 feet.	Comment combined with other comments and resulted in a HDM change.	
20E-003	Chapter 1000; Topic 1003; Index 1003.1 (15)	Entry Control for Bike Paths	Delete the following paragraph: ~~Barrier configuration that preclude entry by motorcycles shall not be used because they present mobility problems for bicyclists, especially those towing trailers, using side panniers, and other wider bicycle configurations.~~	Comment combined with other comments and resulted in a HDM change.	

Commentor 21E: **Jim Antone, Air Quality Planner**
Organization: **Yolo-Solano County Air Quality Management District**

Comment Number	Chapter & Index	Index Title	Comment/Issue	Resolution of Comment/Issue	Commentary, as necessary, on Resolution of Comment/Issue
21E-001	Chapter 100; Index 105.2	Pedestrian Facilities	add this bullet: *(11) Intersections with local streets* . Where current or potential future pedestrian activity warrant, intersections should be designed to maximize pedestrian safety and accessibility by including, but not necessarily limited to, sidewalks with ADA compliant handicap ramps, bulb outs, refuge islands, signalization and crosswalks.	Comment did not result in a HDM change.	Discussed in the first paragrapgh of this Index.
21E-002	Chapter 400; Index 403.6	Turning Traffic	page 248, in last paragraph before last sentence on signing and delineation add: In addition, a left-turn-only bicycle lane should always be provided when two or more left turn-only motor vehicle lanes are provided.	Comment(s) beyond the scope of this HDM update.	Requires further discussion with the California Bicycle Advisory Committee and the Division of Traffic Operations..

21E-003	Chapter 500; Index 502.2	Local Street Interchanges	Add as first paragraph: All interchange projects should incorporate the needs of pedestrians and bicyclist as part of the project design and construction, or alternative separate pedestrian and bicycle facilities should be considered concurrently with the project for motor vehicles.	Comment combined with other comments and resulted in a HDM change.	
21E-004	Chapter 500; Index 502.2	Local Street Interchanges	typo in existing first paragraph: "given to orienting maps at" should say "given to orienting ~~maps~~ **ramps** at"	Comment resulted in a HDM change.	

Bicycling Groups, Associations, Coalitions, Organizations, etc.

Commentor 22E: **Jim Baross**
Organization: **California Association of Bicycle Organizations (CABO)**

Comment Number	Chapter & Index	Index Title	Comment/Issue	Resolution of Comment/Issue	Commentary, as necessary, on Resolution of Comment/Issue
22E-001	n/a	n/a	There currently is no method to study or experiment with designs considered for inclusion in the HDM and although the State Engineer has the authority to approve deviations from standard design, there is no process to consider these deviations for inclusion in the HDM. I recommend that a policy and procedure be implemented for design study, experimentation, and approval similar to that for the California Manual of Traffic Control Devices (CA-MUTCD).	Comment(s) beyond the scope of this HDM update.	Currently being discussed with the California Bicycle Advisory Committee.
22E-002	Chapter 1000 and all other Chapters	n/a	I recommend that the HDM provide reference to bicycling and walking uses throughout and at EVERY opportunity, but I agree that it is also valuable as well to provide means for easily accessing bicycling-specific facility designs; this might best be provided by electronic search capabilities and/or by provision of duplicative information both within a separate chapter, such as the former Chapter 1000 AND within/throughout the whole document where applicable.	Commentary, no response required.	
22E-003	Not identified	n/a	Consistent roadway design and operation across the State (and Nation) is important for safe and efficient operations, therefore the HDM should clearly state that all bikeways owned or constructed within the right of way of state or local agencies shall be constructed and operated in compliance with the standards and criteria of the HDM and the California MUTCD.	Commentary, no response required.	
22E-004	Not identified	n/a	It should be clearly stated that all city, county, regional and other local agencies responsible for bikeways or roads where bicycle travel is not prohibited shall follow the minimum bicycle design criteria contained in this and other chapters of this manual (See Streets and Highways Code Section 891).	Commentary, no response required.	
22E-005	Not identified	n/a	Bicycle travel can be enhanced in many ways such as by improved bicycle detection at traffic actuated signals, deletion of high-speed dual-destination travel lanes, replacement of drain grates that catch bicycle wheels, etc.	Commentary, no response required.	
22E-006	Not identified	n/a	The use of facilities bikeways and roads should be designed to conform to the rights and duties of drivers of vehicles and all jurisdictions responsible for bicycling transportation operation should conform to the CVC per CVC 21.	Commentary, no response required.	
22E-007	Not identified	n/a	Meeting the safety and mobility needs of bicycle, equestrian, motor vehicle, and pedestrian transportation modes should be stated an essential part of all highway projects. It should be clearly stated that this is a key part of the Department's "Complete Streets" policy to promote bicycle and pedestrian travel – note Deputy directive 64 R1, Streets & Highways Code Sect ion 885.2(f), Streets and Highways Code Section 890.4, 890.6 and 891.	Commentary, no response required.	
22E-008	Not identified	n/a	The Department and all city, county, regional and other local agencies responsible for designated bikeways, or for roads where bicycle travel is not prohibited must follow the minimum bicycle planning and design criteria contained in this and other chapters of HDM, applicable to both local roads and state highways. It should be noted that freeway segments that are open or closed to bicycles should be signed clearly as open for bicycling at entrance ramps. When bicyclists are directed to leave the freeway, signs directing them to alternate routes should be posted. See the CA- MUTCD for standard signs. It should be stated that departmental orders or approval of local agency resolutions or ordinances closing freeway segments must be documented.	Comment(s) beyond the scope of this HDM update.	California MUTCD issue.
22E-009	Not identified	n/a	Bicycle travel can be promoted by improved maintenance and by upgrading existing roads, regardless of whether or not bikeways are designated. This effort requires increased attention to the right-hand portion of roadways where bicyclists operating at less than the normal speed of traffic often operate.	Commentary, no response required.	

22E-010	Chapter 600	n/a	On new construction and major reconstruction projects, adequate width should be provided to permit shared use by motorists and bicyclists. On resurfacing projects, it is important to provide a uniform surface for bicyclists and pedestrians. See Index 625.1(1) and 635.1(1) for guidance in accommodating bicyclist and pedestrian needs on resurfacing projects.	Commentary, no response required.	
22E-011	Chapters 300 & 400	n/a	It should be stated that when adding lanes or turn pockets, a minimum 4-foot shoulder shall be provided (see Topic 405 and Table 302.1), and when there is an obstruction or barrier adjacent to the shoulder (e.g. guardrail, curb, bridge railing), a minimum 5 foot shoulder shall be provided.	Comment combined with other comments and resulted in a HDM change.	
22E-012	Not identified	n/a	Lateral obstructions and barriers reduce the effective bicycling shoulder width so clearance should be provided to these fixed objects.	Comment combined with other comments and resulted in a HDM change.	
22E-013	Not identified	n/a	Shoulder width should also be increased when vehicle speeds exceed 35 mph, or when truck, bus and recreational vehicle traffic exceeds 17%.	Commentary, no response required.	
22E-014	Not identified	n/a	When considering the restriping of roadways for more traffic lanes, the impact on bicycle travel should be assessed.	Comment(s) beyond the scope of this HDM update.	
22E-015	Not identified	n/a	Bicycle and pedestrian traffic through construction zones should be addressed early in the project development process.	Comment(s) beyond the scope of this HDM update.	Project Development Procedures Manual guidance, not the HDM.
22E-016	Chapter 100	n/a	For instance for new Chapter 100 the following is recommended, retitle to CHAPTER 100 BASIC DESIGN POLICIES FOR HIGHWAYS AND CLASS I BIKEWAYS. Include statements such as the following - - Addressing the safety and mobility needs of bicyclists and pedestrians.is an essential part of all highway projects. Topic 105 discusses Pedestrian Facilities with Index 105.3 addressing accessibility needs. Topic 10(?) discusses bicyclist needs.	Comment did not result in a HDM change.	
22E-017	Chapter 100	n/a	For instance for new Chapter 100 the following is recommended, retitle to CHAPTER 100 BASIC DESIGN POLICIES FOR HIGHWAYS AND CLASS I BIKEWAYS. Include statements such as the following - - Class I Bikeways (Bicycle Paths) - Class I bikeways (bicycle paths) are transportation facilities with exclusive right of way, with cross flows by motorists minimized. Section 890.4 of the Streets and Highways Code describes Class I bikeways as serving "the exclusive use of bicycles and pedestrians". Experience has shown that if regular pedestrian use is anticipated, separate facilities for pedestrians are necessary to minimize conflicts. Dual use by pedestrians and bicycles is undesirable, due to the significant differences in pedestrian and bicyclist speeds and maneuverability, and the fact that pedestrians do not walk in straight predictable lines. Pedestrians may be walking with pets on leashes or young children walking or riding toys, which creates additional risk of conflicts. Pedestrians and bicyclists should be separated wherever possible.	Comment did not result in a HDM change.	
22E-018	Chapter 100	n/a	For instance for new Chapter 100 the following is recommended, retitle to CHAPTER 100 BASIC DESIGN POLICIES FOR HIGHWAYS AND CLASS I BIKEWAYS. Include statements such as the following - - Sidewalk facilities are not Class I facilities because they are intended to serve pedestrians, usually do not meet the design standards for Class I bikeways, and do not minimize motorist cross flows therefore increasing “right hook”, “left cross” and “drive-out” crash risks for bicyclists traveling faster than pedestrians.	Comment did not result in a HDM change.	
22E-019	Chapter 1000	n/a	Add reference to CVC Sections 21207.5 and 21230 regarding the operation of motorized bicycles and motor scooters on bicycle paths since motor vehicles are prohibited from bike paths. These prohibitions can be communicated by appropriate standard signs in the CA-MUTCD.	Comment did not result in a HDM change.	California MUTCD issue.
Commentor 23E:	**Alan Wachtel and Jim Baross**				
Organization:	**California Bicycle Advisory Committee (CBAC), High-speed Merge/Diverge Subcommittee**				
Comment Number	**Chapter & Index**	**Index Title**	**Comment/Issue**	**Resolution of Comment/Issue**	**Commentary, as necessary, on Resolution of Comment/Issue**
23E-001	Not identified	n/a	Because bicycle travel is legal and expected on all conventional streets and highways, delete from the HDM those sections that allow freeway-style features such as high speed merge/diverge ramps;	Commentary, no response required.	A goal of this manual update is to review and update this type of guidance as appropriate.
23E-002	CA MUTCD	n/a	Replace Figure 9C-103 (CA MUTCD) with modified figure showing parallel auxiliary lanes	Comment(s) beyond the scope of this HDM update.	California MUTCD issue.
23E-003	CA MUTCD	n/a	Provide guidance in CA MUTCD that the new Figure 9C-103(CA) applies only to reconstruction of existing locations	Comment(s) beyond the scope of this HDM update.	California MUTCD issue.

Commentor 24E:	**Dave Snyder**				
Organization:	**California Bicycle Coalition**				
Comment Number	**Chapter & Index**	**Index Title**	**Comment/Issue**	**Resolution of Comment/Issue**	**Commentary, as necessary, on Resolution of Comment/Issue**
24E-001	General		We appreciate this opportunity to have input on the Highway Design Manual and we applaud many of the changes and improvements in the manual. . . . . (the following) comments come primarily from the perspective of bicycling advocates and practitioners who specialize in planning and designing facilities forbicycling and walking. The primary author of the comments is Michael Moule, PE, TE of Nelson\Nygaard, a registered professional civil and traffic engineer in California.	Commentary, no response required.	
24E-002	General		We strongly feel that many of our streets and roads need a thorough redesign in order to make California's communities the safe, healthy, and livable places that Californians want. The importance of the California Highway Design Manual for bicycling cannot be understated. Sections 890-891 of the California Streets and Highways Code require all city, county, and regional agencies to follow Caltrans' minimum safety design criteria for bikeways; the standards for bikeways included in the HDM (and the California Manual on Uniform Traffic Control Devices) therefore apply to every single bikeway in the state and not just to those owned and maintained by the state.	Commentary, no response required.	
24E-003	General		Because Caltrans' safety design criteria for bikeways are mandatory throughout the state, it is crucially important that the new Highway Design Manual provides the necessary guidance on the use of many innovations proven successful in increasing the rate of bicycling in cities throughout the world. Communities throughout California are experiencing an unprecedented increase in bicycling and a concomitant demand for new and improved street designs to accommodate and encourage more cycling. Innovations and experiments are proliferating throughout California, the U.S. and elsewhere in the world.	Commentary, no response required.	
24E-004	General		This revision does not appear to have taken into consideration some significant recent research on bikeway design conducted since the last major revision of the HDM. For example, the National Cooperative Highway Research Program research project 15-37 revised the American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities. Another recent document of national significance about bikeway design is the National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide. Even these documents supplemental to the Highway Design Manual do not provide guidance for the whole range of bikeway designs that local California jurisdictions want to apply in order to meet the growing demand for new and improved bicycling facilities.	Commentary, no response required.	The NATCO publication is to be reviewed as a separate activity once this HDM update is completed. The HDM will be evaluated against the AASHTO guidance once it is published.
24E-005	General		An incomplete list of treatments for which guidance is lacking or which are effectively prohibited by the Highway Design Manual is provided below: > Cycle tracks (bicycle facilities physically separated from the motor vehicle traffic and distinct from the sidewalk) > Raised bike lanes (bike lanes separated from the rest of the roadway with a slight grade elevation) > Buffered bike lanes (bike lanes with a marked buffer separating the bike lane from the adjacent parking lane and/or general use travel lane) > Shared use paths (the HDM does a poor job of identifying that most "bike paths" are shared use, unless separate facilities are provided for pedestrians). > Paths adjacent to roadways	Commentary, no response required.	Procedures on how to evaluate features such as these is currently being discussed with the California Bicycle Advisory Committee.
24E-006	General		Other treatments that are not germane to the narrow focus on geometric standards of the Highway Design Manual nevertheless deserve mention. The treatments listed below are also not currently permitted for use in bikeway design although they are useful use to improve safety in some bikeways. > Advisory bike lanes (dashed bike lanes within the area of a travel lane) > Door zone indicators > Directional pavement markings on the street	Commentary, no response required.	Procedures on how to evaluate features such as these is currently being discussed with the California Bicycle Advisory Committee.
24E-007	General		We have separately made comments on the revision of the California Manual on Traffic Control Devices and hope to participate more fully in the future in the discussions of the California Traffic Control Devices Committee.	Commentary, no response required.	
24E-008	General		We also urge you to address the omissions of necessary guidance in this document. It is imperative that this revision be finalized soon, so that the design improvements included therein can be implemented in the field as soon as possible.	Commentary, no response required.	

24E-009	General		Furthermore, we request that you recognize the urgency of the changes that we need to the Highway Design Manual (and the related California Manual on Traffic Control Devices) and consider the creation of a task force to produce a new bikeway design manual that incorporates the changes recommended in these comments, the latest research on bikeway design, and the growing demand for new bikeways that are comfortable and safe for all kinds of users.	Commentary, no response required.	
24E-010	Global	n/a	In our review of chapters relevant to bicycles and pedestrians, we found inconsistency within separate sections of the document, as well as instances where HDM does not reflect intent or even conflicts with California Vehicle Code or CAMUTCD. We recommend a thorough review of the document by a person familiar with bicycle and pedestrian elements of these documents, with an eye toward maintaining consistency.	Commentary, no response required.	The goal of this manual update is to review and update this type of guidance in the HDM as appropriate.
24E-011	Global	n/a	There is no method to study or experiment with designs considered for inclusion in the HDM. While the State Engineer has the authority to approve deviations from standard design, there is no process to consider these deviations for inclusion in the Manual. Consider implementing a policy and procedure for design study/experiment similar to that in the CA MUTCD.	Comment(s) beyond the scope of this HDM update.	Currently being discussed with the California Bicycle Advisory Committee.
24E-012	Global	n/a	Add reference to research noting that pedestrian fatalities increase dramatically at higher speed collisions.	Comment did not result in a HDM change.	As a general rule, the HDM does not reference research documents. However, its guidance is largely based upon research.
24E-013	Chapter 60; Index 62.1	Definitions for Geometric Cross Section	Bike Lane needs to be added to the items defined here.	Comment combined with other comments and resulted in a HDM change.	
24E-014	Chapter 60; Index 62.1 (10	Sidewalk	Current wording - - Sidewalk. A surfaced pedestrian way contiguous to a street used by the public. See DIB 82 for further guidance. This definition is problematic because it states that the sidewalk is "contiguous to a street" implying that it is not part of the street. Considering the fact that "street" and "highway" have the same definition (the entire right-of-way), this is inappropriate because the sidewalk is typically within the right-of-way. Recommended rewrite - - Sidewalk. A surfaced pedestrian way contiguous to the roadway ~~a street~~ used by the public. See DIB 82 for further guidance. It may be best to use the Vehicle Code definition: The portion of a highway, other than the roadway, set apart by curbs, barriers, markings or other delineation for pedestrian travel.	Comment combined with other comments and resulted in a HDM change.	
24E-015	Chapter 60; Index 62.1 (11	Traveld Way	Current wording - - Traveled Way. The portion of the roadway for the movement of vehicles, exclusive of shoulders and bikeways. Topic 301 now includes recommendations on bike lane widths and it specifically states that bike lanes are included in the traveled way, so it seems that the traveled way definition here should be left as it was in the old version of the HDM, only excluding shoulders. Better yet, it could be rewritten to specifically include bicycles: "Traveled Way. The portion of the roadway for the movement of vehicles and bicycles, exclusive of shoulders ~~and bikeways~~.	Comment combined with other comments and resulted in a HDM change.	

24E-016	Chapter 60; Index 62.1 (8)	Roadway	Current wording - - Roadway. That portion of the highway included between the outside lines of the sidewalks, or curbs and gutters, or side ditches including also the appertaining structures, and all slopes, ditches, channels, waterways, and other features necessary for proper drainage and protection. This definition is not clear; in particular it states that the roadway is included between the "**outside lines** of the sidewalks, or curbs, and gutters, or etc…." and it's not clear what "outside lines" means in this context. This seems to imply the lines of the sidewalks or curbs/gutters on the outside of the right-of-way, but this would mean that the sidewalks and curbs and gutters are included as part of the roadway. We recommend that this definition be clarified to indicate that sidewalks, curbs, gutters, ditches, etc. are NOT part of the roadway.	Comment did not result in a HDM change.	The comment suggests redefining roadway as the term roadbed is currently defined.
24E-017	Chapter 60; Index 62.3 (4)	Highway	Oddly, the Highway Design Manual doesn't define the word "Highway" by itself. Presumably, since not defined, either the California Vehicle Code or the California Streets and Highways Code definition of "Highway" would apply. For clarification, "Highway" should be defined in a manner similar to that in the CVC or California SHC.	Comment combined with other comments and resulted in a HDM change.	
24E-018	Chapter 60; Index 62.4	(1) Channelization.	Current wording - - (1) Channelization. The separation or regulation of conflicting movements into definite paths of travel by the use of pavement markings, raised islands, or other suitable means to facilitate the safe and orderly movement of both vehicles and pedestrians. Channelization also can be used to facilitate safe and orderly movement of bicycles. Recommended rewrite: "Channelization. The separation or regulation of conflicting movements into definite paths of travel by the use of pavement markings, raised islands, or other suitable means to facilitate the safe and orderly movement of ~~both~~ vehicles, bicycles, and pedestrians."	Comment resulted in a HDM change.	
24E-019	Chapter 60; Index 62.4 (11	Pedestrian Refuge	Current wording - - Pedestrian Refuge. A pedestrian refuge is a small section of pavement or sidewalk, completely surrounded by asphalt or other road materials, where pedestrians can stop before finishing crossing a road. It is typically used when a street is very wide, as the pedestrian crossing can be too long for some individuals to cross in one traffic light cycle. This definition is unclear and it implies that pedestrian refuges are only used at signalized intersections, which is not true. Recommended revision: "Pedestrian Refuge. ~~A pedestrian refuge is a small section of pavement or sidewalk, completely surrounded by asphalt or other road materials,~~ A defined area between roadway lanes where pedestrians can stop before finishing crossing a road. It is typically used when a street is very wide or to simplify pedestrian movements at complex intersections., ~~as the pedestrian crossing can be too long for some individuals to cross in one traffic light cycle.~~ "	Comment combined with other comments and resulted in a HDM change.	
24E-020	Chapter 60; Index 62.10 (1)	Bicycle	Current wording - - (1) Bicycle. A bicycle is a device propelled exclusively by human power Definition too vague, and doesn't preclude skateboarders, scooters, etc... as defined in (9) pedestrians. We recommend that the HDM use the California Vehicle Code definition: "A bicycle is a device upon which any person may ride, propelled exclusively by human power through a belt, chain, or gears, and having one or more wheels. "	Comment combined with other comments and resulted in a HDM change.	

24E-021	Chapter 60; Index 62.10	Pedestrians	Current wording - - Pedestrians. A person on foot or who uses a conveyance such as roller skates, skateboard, etc., other than a bicycle. A pedestrian can also be a person with a disability who uses assistive devices, such as a wheelchair, for mobility. Recommend that the HDM use the CVC definition for pedestrian: "467. (a) A “pedestrian” is a person who is afoot or who is using any of the following: (1) A means of conveyance propelled by human power other than a bicycle. (2) An electric personal assistive mobility device. (b) “Pedestrian” includes a person who is operating a self-propelled wheelchair, motorized tricycle, or motorized quadricycle and, by reason of physical disability, is otherwise unable to move about as a pedestrian,"	Comment combined with other comments and resulted in a HDM change.	
24E-022	Chapter 80; Index 81.1		Current wording - - Attention should be given to such consideration as:...(d) Costs of eliminating or minimizing adverse effects on natural resources, environmental values, public services, aesthetic values, and community and individual integrity. It's important to consider both the cost and the benefit of eliminating or minimizing adverse effects. Recommended revision: "Costs and benefits of eliminating or minimizing adverse effects on natural resources, environmental values, public services, aesthetic values, and community and individual integrity."	Comment resulted in a HDM change.	
24E-023	Chapter 80; Index 81.2		Current wording - - State highways can stimulate local economies, create job centers, revitalize rural communities and urban suburbs as a “Main Street”, and transform urban streets into neighborhood centers. Suburbs by definition aren't "urban", they are suburban, so this sentence contains an oxymoron. Recommended revision: “State highways can stimulate local economies, create job centers, revitalize rural communities and ~~urban~~ suburbs as a “Main Street”, and transform urban streets into neighborhood centers."	Comment combined with other comments and resulted in a HDM change.	
24E-024	Chapter 80; Index 81.2		Current wording - - Designing transportation facilities that integrate the local transportation and land uses while making the design responsive to the other needs of the community, such as walking and bicycling, support the livability of the community and is usually a complimentary goal in addition to meeting the transportation needs associated with the State highway system user needs. There are some grammatical problems and unnecessary text, and the word "other", implies that walking and bicycling are not part of the local transportation and land use needs. Recommended revision: "Designing transportation facilities that integrate the local transportation and land uses while making the design responsive to the other needs of the community, such as walking and bicycling, support s the livability of the community and is usually a ~~complimentary~~ complementary goal ~~in addition~~ to meeting the transportation needs of the users of ~~associated with~~ the State highway system ~~user needs~~.	Comment resulted in a HDM change.	
24E-025	Chapter 80; Index 81.3	Downtown Cores	Add text about the importance of walking and bicycling facilities in downtown core areas, due to parking availability, employment density, and congestion mitigation.	Comment combined with other comments and resulted in a HDM change.	
24E-026	Chapter 100; Index 101.1	n/a	Indexes 81.2 and 81.3 do an excellent job describing the highway context and place type that highways may run through. We recommend that Index 101.1 on Design Speed at least refer back to these indexes, and it would be best if there were a specific connection drawn between context/place type and design speed. For example, this section could point out that higher design speeds are generally appropriate for rural environments, while lower design speeds are generally appropriate for urban environments.	Comment combined with other comments and resulted in a HDM change.	

24E-027	Chapter 100; Index 101.1		Current wording - - In addition, the selected design speed should be consistent with the operating speeds that are likely to be expected on a given highway facility. This is a good paragraph. However, it would be useful to add an additional sentence that refers to the fact that a change in context or design might encourage slower speeds and may allow a slower design speed to be appropriate. Recommended sentence: "If a design project or companion land use change adds streetscape features, changes in landscape, buildings closer to the street, or other features that change the context or the design of the road that might encourage drivers to travel at slower speeds, the use of a lower design speed may be appropriate."	Comment combined with other comments and resulted in a HDM change.	Project specific Project Development Team decision. Design speed table has been modified to take place-type into considerartion.
24E-028	Chapter 100; Index 102.2	Design Capacities (Sidewalks)	With the publication of the 2010 Highway Capacity Manual, this entire index shoulde be rewritten. The suggested new index title is "Multi-modal Level of Service". The rewritten text should be based on and refer to the 2010 Highway Capacity Manual Multi-Modal Level of Service. Alternatively, there could be three new separate indexes (Pedestrian Level of Service, Bicycle Level of Service, and Transit Level of Service). Additionally, perhaps Topic 102 should be renamed to "Highway Capacity and Level of Service) since the new HCM doesn't refer only to Capacity anymore.	Comment combined with other comments and resulted in a HDM change.	
24E-029	Chapter 100; Index 105.1		Current wording - - LOS in sidewalks and walkways are primary a function of pedestrian volume and pedestrian path width. This is no longer true per the 2010 Highway Capacity Manual. We recommend simply deleting this sentence.	Comment(s) beyond the scope of this HDM update.	Once the Department formally adopts the HCM, the HDM will be modified appropriately.
24E-030	Chapter 100; Index 105.2		The minimum width of a sidewalk should be 8 feet directly adjacent to a curb and 6 feet when separated by a planting strip. We agree with these new minimum dimensions and support their inclusion in the final document. We agree with these new minimum dimensions and support their inclusion in the final document.	Commentary, no response required.	
24E-031	Chapter 100; Index 105.3		Draft Text: Conventional Highways--Grade separations are not normally provided for either cars or pedestrians on conventional highways. However, in those rare cases where pedestrian use is extensive, and where the local agency has requested in writing that a pedestrian separation be constructed, an overcrossing may be considered. Pedestrian Grade Separations are often ignored by pedestrians, so a bit of language should be included about this here. Recommend the following revision: "Grade separations are not normally provided for either cars or pedestrians on conventional highways. However, in those rare cases where pedestrian use is extensive, **where it has been determined that placement and configuration of the grade separation will result in the majority of pedestrians using it,** and where the local agency has requested in writing that a pedestrian separation be constructed, an overcrossing may be considered." Supporting Documentation: > 70 percent of pedestrians would use an overpass if the travel time equaled the at grade crossing travel time; > Very few pedestrians would use an overpass if the travel time were 50 percent longer than the at-grade crossing travel time (AASHTO (Pedestrian Guide), 96, citing 1998 ITE study) http://web.pdx.edu/~jdill/Files/Renfro_Bike-Ped_Overcrossings_ Report.pdf Comment on nonedited portion	Comment resulted in a HDM change.	

24E-032	Chapter 100; Index 115		Draft text: "Generally speaking, bicycle travel can be enhanced by improvements to the right-hand portion of roadways, where bicycles are generally expected to operate. When feasible, a wider shoulder should be considered since bicylcists may use shoulders for travel, and shoulders provide bicyclists an opportunity to pull over to let faster traffic pass." This paragraph suggests roadway shoulders are the preferred location for bicycle facilities. As all agencies are required to follow the minimum criteria in the Manual consider revising this statement. Recommended revision: "Generally speaking, bicycle travel can be enhanced by **inclusion of dedicated bicycle facilities including paths and bike lanes,** or improvements to the right-hand portion of roadways, where bicyclists **typically travel** ~~are generally expected to travel~~. When not feasible to include dedicated bicycle facilities, a wider shoulder may be considered since bicyclists may use shoulders for travel, and shoulders provide bicyclists an opportunity to let faster traffic pass."	Comment combined with other comments and resulted in a HDM change.	
24E-033	Chapter 100; Index 116	Bridge railing height; see Index 208.10	Index 208.10 only recommends bicycle railings on designated bikeways, rather than all roads open to bicycle travel (which would be completely impractical of course). Since this bulletted item is within a section that is about whether freeway segments should be open to bicycling (not creating a dedicated bikeway), it is not necessary to consider bicycle railing height when making this consideration. This bulleted item and the reference to Index 208.10 could mislead designers into thinking that any freeway without bicycle railing height shouldn't be opened to bicyclists. We recommend deleting this bulleted item.	Comment resulted in a HDM change.	
24E-034	Chapter 200; Index 204.5	New Section	While the bicycle turnouts text is excellent, especially with the addition recommended above, another consideration could be made for sustained grades. Recommend a new section (5) in this index: "(5) Bicycle Climbing Lanes. Where less than 4'shoulders are otherwise provided, consideration should be given to providing a minimum 4' shoulder in the uphill direction only, with a narrower shoulder in the downhill direction, since uphill cyclists will be overtaken far more frequently than downhill cyclists."	Comment combined with other comments and resulted in a HDM change.	
24E-035	Chapter 200; Index 204.5 (4)		Draft Text: "Where less than 4'shoulders are provided, consideration should be given to providing bicycle turnouts equal to a standard shoulder width as often as possible. These turnouts will allow safe passing of bicycles by other vehicles in addition to providing resting opportunities on the sustained grade for the cyclist." This is an excellent addition to this document. However, it isn't quite sufficient as written. When climbing sustained grades, many cyclists do not want to stop, over concern of losing their momentum and needing to start again. Therefore, unless these bicycle turnouts are long enought for cyclists to continue riding while letting vehicles pass, they won't be used by all cyclists, and will therefore be ineffective. Recommend the following changes: "Where less than 4'shoulders are provided, consideration should be given to providing bicycle turnouts equal to a standard shoulder width as often as possible. These turnouts should be long enough to allow cyclists to continue to ride while allowing will allow safe passing of bicycles by other vehicles to pass. These turnouts may also provide in addition to providing resting opportunities on the sustained grade for the cyclist." As an alternative, it would be better to specify a minimum length of a bicycle turnout in section (b) of this secction. However, someone would need to calculate what this length should be. I would estimate that it would need to be at least 200 feet long given a typical bicyclists climbing speed and how long an overtaking maneuver will take.	Comment combined with other comments and resulted in a HDM change.	
24E-036	Chapter 200; Index 205.3 (6)	Urban Driveways - Pedestrian and Disabled Person Access	We agree with this addition and support its inclusion in the final document.	Commentary, no response required.	

24E-037	Chapter 200; Index 205.4		Draft Text: "At unpaved driveway crossings of bike paths and pedestrian walkways or driveway intersections with roadways or pedestrian paths, the driveway shall be paved a minimum of 15 feet or the length of the unpaved driveway…" We agree with this addition and support its inclusion in the final document.	Commentary, no response required.	
24E-038	Chapter 200; Index 208.4		Draft Text: "Sidewalks on bridges should be provided wherever pedestrian traffic is not prohibited in urban, suburban, and rural town centers. The minimum width of a bridge sidewalk shall be 6 feet. The recommended width should be 8 feet for pedestrian comfort." We strongly support the addition of the minimum and recommended width standards. However,as written, it reads as if sidewalks are only required in town centers in urban and suburban areas. Recommend rewrite: "...should be provided in all urban and suburban areas, and in rural town centers, unless edestrian traffic is prohibited."	Comment combined with other comments and resulted in a HDM change.	
24E-039	Chapter 200; Index 208.6	Bicycle and Pedestrian Overcrossings and Undercrossings	Section is poorly written and disjointed. Rewrite to clarify and include a referrence to Index 105.3 for guidance on where pedestrian grade separation is appropriate.	Comment combined with other comments and resulted in a HDM change.	
24E-040	Chapter 200; Index 208.10 (6)	Bicycle Railing	Draft Text: "The minimum height of bicycle rail is 54 inches above the deck surface. Pedestrian railings and combination railings consisting of a concrete barrier surmounted by a fence or tubular railing are satisfactory for bicycles, if at least 54 inches high." Based on a research study, the AASHTO Bike Guide now recommends lower railing height for bicyclists, from 42 to 48 inches. Supporting Documentation: Draft AASHTO Guide for the Development of Bicycle Facilities, Section 5.2.10.	Comment(s) beyond the scope of this HDM update.	A Design Information Bulletin is in the process of being written on this subject.
24E-041	Chapter 200; Index 208.10 (6)		Draft Text: "Bicycles are not considered to operate on a sidewalk, except in special cases where signs specifically direct cyclists to use the sidewalk." Section 1003.3 (2) in this draft recommends against sidewalk bikeways, so this sentence isn't needed as written. Recommended rewrite: While bicyclists sometimes choose to ride on sidewalks, sidewalks are not designated as bicycle facilities, so bicycle railing is not necessary on sidewalks.	Comment(s) beyond the scope of this HDM update.	A Design Information Bulletin is in the process of being written on this subject.
24E-042	Chapter 200; Figure 208.10B		Sidewalk widths shown on Figure 208.10B Combination Vehicluar Barrrier and Pedestrian Railings for Bridge Structures shows 4 and 5 foot sidewalks. Section 208.4 requires bridge sidewalks to be a minimum of 6 feet. Revise Figure 208.10B to show 6 foot sidewalks.	Comment resulted in a HDM change.	

24E-043	Chapter 300; Index 301.1		Draft Text: "Exceptions: For conventional State highways with posted speeds less than or equal to 40 miles per hour and AADTT (truck volume) less than 250 per lane that are in urban, suburban, city or town centers (rural main streets), the minimum lane width shall be 11 feet. See Index 81.3 for place type definitions. The preferred lane width should be 12 feet." Last sentence re-emphasizing 12 ft lane width should be dropped as it is repetitive and undermines the intent of the exception. Travel lanes less than 12 ft in community and urban centers, under the exceptional conditions outlined, may likely be the preferred lane width for routinely accommodating pedestrian and bicycle facilities. Wide lanes can be detrimental to bicycle and pedestrian travel in that they 1) promote higher vehicle speeds, which in turn promote greater injury and fatality risk for pedestrians 2) increase width of road crossings 3) preclude striping bike lanes. The exception should also note that, in certain instances where pedestrian and bicycle accommodation are a top priority for local communities, consideration may be given to 10 ft travel lanes, particularly where truck volumes are even lower. Research indicates there is little safety or operational difference between 10, 11 and 12 foot travel lanes under the conditions outlined/suggested by the exception. Supporting Documentation: Potts, Harwood, Richard (2007). "The Relationship of Lane Width to Safety for Urban and Suburban Arterials," TRB Paper 2010 Highway Capacity Manual now provivdes for no difference in capacity for 10, 11, or 12-foot lanes.	Comment combined with other comments and resulted in a HDM change.	
24E-044	Chapter 300; Index 301.2 (1)		Draft Text: "Class II bikeways (bike lanes), for the preferential use of bicycles, may be established within the roadbed, immediately adjacent to the rightmost lane." Although this statement is a "may" statement initially, the qualifying portion of the statement seems fairly restrictive. For example, this statement could be construed as not allowing a through bike lanes to the left of right turn lanes, a common and accepted practice, that is detailed elsewhere in the HDM. Additionally, this statement could be construed as precluding left side bike lanes on one way streets, which are also discussed elsewhere. Finally, the word "immediately" could be construed to preclude the use of a buffer between travel lanes and bike lanes. While buffered bike lanes have challenges and must be applied carefully in the appropriate locations, they shouldn't be precluded by the HDM. Recommend the following revision: "Class II bikeways (bike lanes), for the preferential use of bicycles, may be established within the roadbed, and are typically placed immediately adjacent to the rightmost ane."	Comment combined with other comments and resulted in a HDM change.	
24E-045	Chapter 300; Index 301.2 (1)		Draft Text: "Bicycle lanes must not be placed between the parking area and curb." Prohibition of bike lanes between vehicle parking areas and the curb could be construed as banning a type of bikeway known as cycle tracks, although it doesn't necessarily do so since cycle tracks are a different kind of bicycle facility. This is an innovative bicycle facility growing in popularity nationally and identified as a potentially valuable strategy for increasing bicycle mode split and reducing GHG emissions and vehicle miles traveled. The HDM should not preclude the use or funding of these facilities where prioritized by local communities with appropriate designs on appropriate roadways. As discussed in our comments on Chapter 1000, this new type of bicycle facility should be defined in the HDM and a few statements about design should be included in the HDM. Full design details may not be appropriate because cycle track design is still in its infancy in the United States. But basic design statements would be beneficial, e.g. that cycle tracks need to be wide enough to be maintained, that there needs to be a buffer from parked vehicles to reduce car door crashes, and that intersections and driveways need to be designed to reduce potential conflict between turning vehicles and bicyclists. Supporting Documentation: NACTO Urban Bikeway Design Guide	Comment(s) beyond the scope of this HDM update.	Currently being discussed with the California Bicycle Advisory Committee.

24E-046	Chapter 300; Index 301.2 (1)		Draft Text: "The minimum bike lane width shall be 4 feet, except where: > Posted speeds are greater than 40 miles per hour, a 6-foot bike lane shall be provided, or > In urban, suburban, and rural main street place types, a 5-foot bike lane shall be provided." 4 feet of space is an absolute minimum width for bike lanes and is barely enough space when there is anything adjacent to the bike lane including a vertical curb, parking, guardrail, etc. We recommend that the HDM state that bike lanes shall be a minimum of 5 feet, and then include 4 feet as an exception where there is no curb and gutter or onstreet parking, or in retrofit situations on extremely constrained low-speed roadways with curbs but no gutter. The exception for 6-foot bike lanes on roads with speeds greater than 40 mph is a good one. The exception for certain place types isn't needed if 5 feet is made the minimum. Recommended text: "The minimum bike lane width shall be **5** ~~4~~ feet, except where: > A 4-foot bike lane may be used on roadways with no curb and gutter or on-street parking, where edge lines or lane lines are used to delineate the bike lane from other travel lanes or a buffer area, or in retrofit situations on extremely constrained low-speed roadways with curbs but no gutter; or > A 6-foot bike lane shall be provided where posted speeds are greater than 40 miles per hour., a 6-foot bike lane shall be provided, or > In urban, suburban, and rural main street place types, a 5-foot bike lane shall be provided. " Supporting Documentation: Draft AASHTO Guide for the Development of Bicycle Facilities, Section 4.6.4.	Comment combined with other comments and resulted in a HDM change.	
24E-047	Chapter 300; Index 301.2 (1)		Draft Text: "On streets with concrete curb and gutter, a minimum width of 3 feet measured from the bike lane stripe to the joint between the shoulder pavement and the gutter shall be provided." 3 feet of pavement next to a gutter joint is similar in operating width to 4 feet adjacent to a vertical curb - it is barely sufficent width for bicycle operation. We recommend that the width of bike lanes be shown to be 4 feet from the gutter joint to the stripe, but allowing 3 feet from the gutter joint in similar conditions to 4 feet adjacent to a curb as discussed in our other comment on this section. The use of "shoulder pavement" in this sentence is also confusing. Recommended revision: "On streets with concrete curb and gutter, a minimum width of **4** ~~3~~ feet measured from the bike lane stripe to the **gutter** joint ~~between the shoulder pavement and the gutter~~ shall be provided, **except in retrofit situations on extremely constrained low-speed roadways**.	Comment did not result in a HDM change.	

24E-048	Chapter 300; Index 301.2 (2)	Parking Adjacent to Class II Bikeways	This section does not address bicycle lane width where parking is adjacent, it addresses shared parking and bicycle lanes. We recommend moving the current text to a subsequent section and revising this section to address the width of bike lanes next to on-street parking. Recommended text for this section: "When on-street parking is permitted, the bicycle lane should be placed between the parking lane an the travel lane. The recommended bicycle lane width in these locations is 6 feet and the minimum bicycle lane width shall be 5 feet. If a buffer is provided between the bike lane and on-street parking, a minimum bike lane width of 4 feet may be used. Where bicycle lanes are installed adjacent to parallel parking, the minimum combined width of the bike lane and the parking lane shall be 13 feet, except that a minimum width of 12 feet may be used where parking usage and turnover are both low. Where parallel parking spaces are marked adjacent to a bike lane, it is preferable to mark the spaces at a minimum width of 7 feet to encourage motorists to park as close as possible to the curb. Bicycle lanes should normally not be placed adjacent to conventional front-in diagonal parking, since drivers backing out of parking spaces have poor visibility of bicyclists in the bicycle lane. The use of back-in diagonal parking can mitigate the conflicts normally associated with bike lanes adjacent to diagonal parking. There can be numerous benefits to back-in diagonal parking for all roadway users: > Improved sight distance between exiting motorists and other traffic compared to parallel parking or front-in angled parking. > No conflict between bicyclists and open car doors. > Easier loading/unloading of vehicles. > Passengers (including children) are naturally channeled toward the curb when > Loading and unloading of the trunk occurs at the curb, not in the street." The CAMUTCD is being updated at this time and should be changed to include the dimensions shown here. The 11-foot dimension included in the old HDM and the CA MUTCD is way too narrow to be appropriate, and even the 12-foot dimension is too narrow except where parking usage and turnover is low. Alternatively, the CA MUTCD could have all dimensions removed from the CA MUTCD generally provides guidance on marking patterns and colors, not the dimensions of geometric features of the Supporting Documentation: Draft AASHTO Guide for the Development of Bicycle Facilities, Section 4.6.5.	Comment combined with other comments and resulted in a HDM change.	
24E-049	Chapter 300; Index 301.2 (2)	Parking Adjacent to Class II Bikeways	Draft Text: "Bike lanes shall not be marked next to curbs where parking is prohibited only during certain hours of the day. This type of bike lane is unsatisfactory because bicycling can occur at all hours of the day, and it is unlikely that bicycle travel will occur only during the hours of the parking prohibition. In additions, enforcement of the parking prohibition to remove vehicles parked during bike lane designation is problematic." As stated in the our other comment on this section, this text addresses shared parking and bike lanes, not bike lanes adjacent to parking. We recommend that this text be moved to a new section called "Time Restrictive Bike Lanes and Parking". Additionally, the intent of this paragraph should be to strongly encourage full-time dedicated bicycle facilities, not to exclude innovative design or efficient use of right-of-way for bicycle accommodation under constrained conditions. As written, this statement is overly speculative (if not incorrect) and acknowledges neither the impact of nor variation in bicycle and parking demand on the decision to install Class II facilities. We recommend that the language from the existing HDM Chapter 1000 be used and modified as needed to meet current practice in several cities in the State. Supporting Documentation: The City of Palo Alto, but one of many examples, effectively utilizes time-restricted bike lanes as a critical strategy for providing dedicated bicycle facilities for the majority of the day (7am-7pm). These facilities provide essential connections for school and job-related commutes, as well as midday activities, while still allowing evening and weekend access to curbside parking for residential areas.	Comment combined with other comments and resulted in a HDM change.	

24E-050	Chapter 300; Index 302.1 {301.2?}		Draft Text: "The shoulder widths given in Table 302.1 shall be the minimum continuous usable width of paved shoulder on highways." The definition of shoulder as part of the roadway implies that it does not include curbs and gutters, and if the shoulder width is to be usable, it shouldn't include curbs and gutters. We recommend the following revision: The shoulder widths given in Table 302.1 shall be the minimum continuous usable width of paved shoulder on highways, exclusive of curbs, dikes, gutters, or gutter pans.	Comment combined with other comments and resulted in a HDM change.	
24E-051	Chapter 300; Index 301.2 (3)		Reduction of Cross Section Elements Adjacent to Class II Bikeways. We agree with this excellent addition to the HDM and support its inclusion in the final document.	Commentary, no response required.	
24E-052	Chapter 300; Figure 301.2A	General	Reorder the figure to show the parking prohibited portions first, then the parking permitted portions, to match the order in the written text.	Comment did not result in a HDM change.	Figure has been edited, but not reordered.
24E-053	Chapter 300; Figure 301.2A	I. MARKED PARKING	Recommend that the label be changed to "MARKED PARALLEL PARKING". Recommend that the bike lane width adjacent to parking be shown at 5 feet to match our recommendations in the text - 4 feet is simply too narrow next to parking. Include a footnote 2 on the dimension. Recommend that the parking dimension be shown as a minimum width of 7 feet since this will encourage motorists to park closer to the curb. Recommend that the combination of the bike lane plus parking be shown as 13 feet minimum and 15 feet preferred. Include footnote 2 on the dimensions, to refer to Index 301.2 (2) for additional guidance.	Comment combined with other comments and resulted in a HDM change.	
24E-054	Chapter 300; Figure 301.2A	II. PARKING PERMITTED WITHOUT MARKED PARKING OR STALL	Recommend that the combination of the bike lane plus parking be shown as 13 feet minimum and 15 feet recommended. A footnote (2) should be included to refer to Index 301.2 (2) for additional guidance.	Comment combined with other comments and resulted in a HDM change.	
24E-055	Chapter 300; Figure 301.2A	III. PARKING PROHIBITED	Recommend that the label be changed to "CURBED ROADWAY WITH PARKING PROHIBITED". Recommend that 5' minimum be shown from the face of curb on the left side, but that 4' minimum bike lane be shown for the measurement from the gutter joint to the stripe; include a footnote 1 on both dimensions. Recommend that on the left side a curb be added to the drawing, and the rest be left as shown.	Comment combined with other comments and resulted in a HDM change.	
24E-056	Chapter 300; Figure 301.2A	IV. TYPICAL ROADWAY IN OUTLYING AREAS PARKING RESTRICTED	Recommend that the label be changed to "UNCURBED ROADWAY WITH PARKING PROHIBITED". Recommend that 4' minimum be shown for the dimension, and include a footnote 1 on both dimensions. Recommend that on the left side a curb be added to the drawing, and the rest be left as shown.	Comment combined with other comments and resulted in a HDM change.	
24E-057	Chapter 300; Figure 301.2A	Notes	Draft Text: (1) See Index 301.2(1) for additional guidance; may be 5 feet or 6 feet. Recommend the following change: "(1) See Index 301.2 (1) for additional guidance; minimum varies from 4 feet to 6 feet depending on conditions"	Comment combined with other comments and resulted in a HDM change.	
24E-058	Chapter 300; Figure 301.2A	Notes	Recommend additional note (2): "(1) See Index 301.2 (2) for additional guidance." Renumber existing note (2) to be note (3)	Comment resulted in a HDM change.	

24E-059	Chapter 300; Index 303.1		Draft Text: "The use of curb should be avoided on facilities with posted speeds less than or equal to 40 miles per hour, except as noted in Table 303.1." This revision appears to have been inadvertently flipped around to be the opposite of what it should be. This section formerly said that "…curb should be avoided on facilities with operating speeds greater than 45 mph..." and now it says that "curb should be avoided on facilities with posted speeds less than or equal to 40 miles per hour". It appears that this section was intended to be changed from operating speeds to posted speeds, and that the threshold was intended to be changed from speeds greater than 45 mph to speeds greater than or equal to. Because it is not entirely clear what change is intended here, we want to make note that we do not support a lowering of the speed threshold by adding "or equal to" to the 45 mph speed threshold, although we are fine with the change from operating to posted speeds. This particular change is quite problematic given the fact that 45 mph posted speeds are very common in suburban areas where sidewalks are very much appropriate. Elsewhere in this index it is indicated that curbs may be appropriate "where sidewalk is appropriate" There are many highways in suburban areas with 45 mph speed limits where sidewalk is needed for pedestrians -- it is important to have curbs to provide separation between pedestrians and vehicles, as stated elsewhere in this index. Recommended wording: The use of curb should be avoided on facilities with posted speeds greater than 45 mph, except as noted in Table 303.1.	Comment combined with other comments and resulted in a HDM change.	
24E-060	Chapter 300; Index 303.2		Draft Text: "Since bicycles are not prohibited on conventional highways, where the shoulder width is 4 feet, gutter pan width should be reduced to 1 foot, so 3 feet is provided between the traffic lane and the longitudinal joint at the gutter pan. For mandatory requirements regarding drainage inlet grates for bicycles, see Index 1003.6(3). The existing definition of shoulder and other statements in the HDM imply that the shoulder does not include curb and gutter -- we've made a recommendation for Index 302.1 to clarify that shoulder widths does not include curb and gutter. If those recommendations are accepted, then this statement can simply be deleted.	Comment combined with other comments and resulted in a HDM change.	
24E-061	Chapter 300; Index 303.4 (1)	Bulbouts	Draft Text: "A bulbout is an extension of the sidewalk into the roadway. Bulbouts should be designed according to Figure 303.4, other design elements are not shown." The entire premise of bulbouts is that they offset on-street parking, and this text should be written to make this clear. Recommended rewrite: A bulbout is an extension of the sidewalk into the roadway. Bulbouts are typically used on streets with on street parking to offset or "protect" the on-street parking. Bulbouts should be designed according to Figure 303.4, other design elements and dimensions for diagonal parking are not shown.	Comment combined with other comments and resulted in a HDM change.	
24E-062	Chapter 300; Index 303.4 (1)	Bulbouts	Draft Text: "Bulbouts shorten crossing distances and therefore reduce pedestrian conflict time with mainline traffic. By placing the pedestrian entry point closer to traffic, bulbouts improve visibility between motorist and pedestrians." Additional benefits of bulb-outs include provision of additional walking space for pedestrian queuing at high volume crossing locations and for urban design amenities such as bicycle parking, benches, landscaping, and sidewalk commercial activity.	Comment combined with other comments and resulted in a HDM change.	

24E-063	Chapter 300; Index 303.4 (1)		Draft Text: "They are appropriate for an urban environment and should only be placed on routes with posted speeds 35 mph or less when design vehicles are accommodated if applicable (see Topic 404)." The implied restriction to urban environments is speculative and counter-intuitive, and the restriction to roads with posted speeds of 35 mph or less is also unnecessary. If there is on-street parking along an arterial, protecting the parking with bulbouts may have a benefit of reducing crshes, and on arterials with on-street parking and high posted speed limits, it is likely even more important to reduce pedestrian crossing distances and open up sight lines for pedestrians. Delete last sentence or consider revising to only include Topic 404 reference: "They are appropriate...only (for) routes with posted speeds of 35 mph or less." This statement is speculative and counterintuitive. Recommended rewrite: "If applicable, design vehicles must be accommodated at bulbouts (see Topic 404)."	Comment combined with other comments and resulted in a HDM change.	
24E-064	Chapter 300; Index 303.4 (1)		Draft Text: "When used, it is desirable to place bulbouts at all corners of an intersection where pedestrians are allowed to cross. Bulbouts are to be paired up at mid-block locations." The placement of bulbouts should be based on the presence of on-street parking. If there is no on-street parking on one side of the street, then there shouldn't be a bulbout on that side. Additionally, there are increasing instances of curb bulbs at strategic midblock (non-crossing) locations as an urban amenity and economic development tool for sidewalk cafes, landscaping, etc. These features should not be excluded or discouraged. Revise last sentence to read "at mid-block crossing locations." Recommended rewrite: "When used, it is desirable to place bulbouts at all corners of an intersection where there is on-street parking and pedestrians are allowed to cross. At mid-block crossings of streets with on-street parking, bulbouts should be placed on both sides of the street. are to be paired up at mid-block locations.	Comment combined with other comments and resulted in a HDM change.	
24E-065	Chapter 300; Index 303.4 (1)		Draft Text: "If parking stall markings are present, the curb face of the bulbout should be setback a minimum of 2 feet from the parking stall marking. Available width for bicyclists should not be reduced along the curb face of the bulbout." A minimum 2 ft setback is overly restrictive and undermines curb bulb benefits, in particular for unsignalized crossings where pedestrians must position themselves to be seen by oncoming vehicles and judge gaps in traffic. Additionally, it is actually better if parked vehicles and the curb extension form a continuous edge that doesn't move back and forth in these environments. The critical aspect is that neither the curb itself or the gutter should encroach into a travel lane or a bike lane. Recommended rewrite: If parking stall markings are present, the gutter joint of the bulbout or if no gutter, the curb face of the bulbout should be placed no further into the roadway than setback a minimum of 2 feet from the parking stall markings. Where parallel parking is permitted but parking spaces are not marked, the gutter joint of the bulbout or if no gutter, the curb face of the bulbout, should be placed no more than 8 feet from the face of the original curb line. Available width for bicyclists should not be reduced along the curb face of the bulbout.	Comment combined with other comments and resulted in a HDM change.	
24E-066	Chapter 300; Index 303.4 (1)		Draft Text: "Avoid bulbouts on facilities where highway grade lines exceed 5 percent." This is overly restrictive, and there is no specific justification for this. Because bulbouts provide additional space for pedestrians at corners, placement in areas of steep terrain can make it easier, not more difficult to provide accessibility for pedestrians. We recommend deleting this sentence.	Comment did not result in a HDM change.	Statement is to comply with accessibility standards.

24E-067	Chapter 300; Index 303.4 (2)		Draft Text: "In lieu of a busbulb, a busbay could be considered." A busbulb has a very specific purpose to significantly reduce dwell time at each bus stop. A busbay has the opposite effect, requiring the bus to pull completely out of the traveled way can sometimes create significant delay to buses. Busbays have their benefits in improving vehicle and bicycle mobility, but they are certainly not a substitute for a busbulb. We recommend deleting this sentence.	Commentary, no response required.	
24E-068	Chapter 300; Index 303.4 (3) & (4)	Busbays & Bus Stops	These two items seem out of place in this index about curb extensions. Perhaps these should be moved to Topic 108 where other transit issues are discussed.	Commentary, no response required.	Placement kept here to relate to curb information.
24E-069	Chapter 300; Figure 303.4	Bulbout Figure	We recommend the following changes to this figure: > Bulbout length is not defined very well (no clear ending point on the right side) and is probably an unnecessary dimension; we recommend removing it from the figure. > Note 3 about red curb paint: Red curb paint is an optional supplement that typically isn't used on corner radii, in part because it is obvious that motorists shouldn't park there. The same is true with curb extensions since curb extensions offset on-street parking. We recommend removing this note from the figure. > Per our comments on the dimensions of curb extensions, we recommend removing the 2-foot minimum offset between the markings and the curb face. It would be best to instead show curb and gutter and have the gutter joint line up with the parking space marking. > We recommend removing the 8' dimension to parking spaces and the 6' dimension of the curb extension. > The curb ramps shown would be about 4 to 5 feet long based on the other dimensions shown here. In order to meet the correct ramp slopes the curb ramps will typically need to be longer; we recommend showing them overlapping the original curb line.	Comment combined with other comments and resulted in a HDM change.	
24E-070	Chapter 300; Index 305.1		Draft Text: "Where pedestrians are expected to cross 4 or more lanes at a signalized intersection a minimum 6 foot wide pedestrian refuge island should be provided." Pedestrian refuge islands are more important at unsignalized crossings than signalized ones. At signalized crossings pedestrians should generally be provided with pedestrian signal timing that gets them all the way across the street. We recommend removing this sentence or changing it to the following: "Where pedestrians are expected to cross 4 or more lanes at an unsignalized location, signalized intersection a minimum 6 foot wide pedestrian refuge island should be provided."	Comment combined with other comments and resulted in a HDM change.	
24E-071	Chapter 300; Index 306.1		Draft Text: "The minimum right of way width on new construction for 2-lane highways should be 130 feet." This is wide, and is probably appropriate for rural settings, but does not promote good urban design.	Commentary, no response required.	The 150 foot width is for a generic highway. Urban facilities can be narrower than this dimension.
24E-072	Chapter 300; Index 307.2		Draft Text: "A 2-lane, 2-way roadbed consists of a 24-foot wide traveled way plus paved shoulders. In order to provide structural support, the minimum paved width of each shoulder shall be 4 feet." This change from 2 feet to 4 feet is excellent and will serve cyclists well who ride in rural areas. This seemingly minor difference in shoulder width is extremely important to cyclists since 2 feet is two narrow -- cyclists can't easily stay entirely within the shoulder, and even if they do, this results in relatively close passing maneuvers. 4 feet is the minimum necessary width to make it possible for bicyclists to comfortably use the highway when there are frequent overtaking vehicles. We support the inclusion of this text in the final document.	Commentary, no response required.	

24E-073	Chapter 300; Index 307.2		Draft Text: "Where 4-foot shoulders are not possible, consideration should be given to providing bicycle turnouts equal to a standard shoulder width that are 20 to 30 feet in length as often as possible." The idea of bicycle turnouts is a good one. But it is important to note that cyclists highly value momentum and are far less likely to use turnouts if they are too short to continue riding in order to let vehicles overtake. We recommend that these turnouts be at least 100 feet long and possibly longer in order to allow bicyclists to continue to pedal, perhaps slowing down a bit before merging back into the travel lane.	Comment combined with other comments and resulted in a HDM change.	
24E-074	Chapter 300; Index 308.1		Draft Text: "Shoulder width shall not be less than 5 feet when curbs with 2-foot or wider gutter pans, railings, or other lateral obstructions are adjacent to the right edge of shoulder). If gutter pans wider than 2 feet are used, then the minimum shoulder width shall be 3 feet wider than the width of the gutter pan being used." The existing definition of shoulder and other statements in the HDM imply that the shoulder does not include curb and gutter -- we've made a recommendation for Index 302.1 to clarify that shoulder widths does not include curb and gutter. If those recommendations are accepted, then these statement can simply be deleted and bicycle accommodation is addressed sufficiently by the 4' shoulder requirement in the previous paragraph.	Comment combined with other comments and resulted in a HDM change.	
24E-075	Chapter 300; Index 309.1		Draft Text: "Since bicyclists may travel on shoulders, at least 1 foot of horizontal clearance from the edge of shoulder to fixed objects, guardrail, or barriers should be provided to minimize the risk of a bicyclist collision." We agree with this in concept. However, given the definition of shoulder and how guardrail and barriers are typically placed at the edge of the roadway (per Caltrans Standard Plans), it can be interpreted that the shoulder by definition goes all the way to the guardrail or barrier. Recommended wording: "Since bicyclists may travel on shoulders, at least 1 foot of horizontal clearance from the edge of shoulder to fixed objects, guardrail or barriers should be provided to minimize the risk of a bicyclist collision. Where a guardrail or barrier is placed along a shoulder that is narrower than 6 feet, 2 feet of additional shoulder width should be provided to minimize the risk of a bicyclist collision."	Comment combined with other comments and resulted in a HDM change.	
24E-076	Chapter 400		Chapter should refer to Caltrans' Complete-Intersections-A-Guide-to-Reconstructing-Intersections-and-Interchanges-for-Bicyclists-and-Pedestrians (2011). http://www.dot.ca.gov/hq/traffops/survey/pedestrian/Complete-Intersections-A-Guide-to-Reconstructing-Intersectionsand-Interchanges-for-Bicyclistsand-Pedestirans.pdf	Comment(s) beyond the scope of this HDM update.	Referencing the publication mentioned is currently under discussion within the Department.
24E-077	Chapter 400; Index 401.1		Drfat Text: "At-grade intersections must handle a variety of conflicts among vehicles, which includes transit, pedestrians, and bicycles." This reads as if pedestrians and bicycles are included as vehicles, which is not the case. Recommended rewrite: At-grade intersections must handle a variety of conflicts among vehicles, which includes transit, pedestrians, and bicycles.	Comment combined with other comments and resulted in a HDM change.	

24E-078	Chapter 400; Index 401.1		Draft Text: "Arriving, departing, merging, turning, and crossing paths of moving pedestrians, bicycles, and vehicular traffic have to be accommodated within a relatively small area." This implies that pedestrians and bicyclists aren't traffic, which is not the case. Recommended rewrite: "Arriving, departing, merging, turning, and crossing paths of moving pedestrians, bicycles, and vehicles vehicular traffic have to be accommodated within a relatively small area."	Comment combined with other comments and resulted in a HDM change.	
24E-079	Chapter 400; Index 401.1		Draft Text: "The objective of designing an intersection is to balance the convenience, ease, and comfort of the users, the human factors, with moving the traffic (automobiles, trucks, motorcycles, transit vehicles, bicycles, pedestrians, etc.) using it effectively. This sentence structure is hard to read and unclear.	Comment combined with other comments and resulted in a HDM change.	
24E-080	Chapter 400; Index 401.2		Draft Text: "Intersections should be designed for safe, convenient use by pedestrians of all ages and abilities." Revise to: "Intersections should be designed for safe, convenient use by pedestrians AND BICYCLISTS of all ages and abilities.	Comment combined with other comments and resulted in a HDM change.	
24E-081	Chapter 400; Index 401.2 (1)	The Driver	Much of this section discusses characteristics of bicyclists and pedestrians. These characteristics should be moved down to sections (2) and (3), which are about these users.	Comment combined with other comments and resulted in a HDM change.	
24E-082	Chapter 400; Index 401.3	Traffic Considerations	Good additions, keep in.	Commentary, no response required.	
24E-083	Chapter 400; Index 401.4		Draft Text: "In highly developed urban areas, where right of way is usually limited, the volume of vehicular traffic, pedestrians, and bicyclists are large, street parking available, and transit stops (for both buses and light rail) are available, all interact in a variety of movements that contribute to and add to the complexity of a state highway and can create busy intersections." This sentence is trying to make a good point, but it is poorly written so it is unclear.	Comment combined with other comments and resulted in a HDM change.	
24E-084	Chapter 400; Index 402.1	Capacity	Draft Text: "(1) Unsignalized Intersections. Chapter 10 of the “Highway Capacity Manual”, gives methodology for capacity analysis of unsignal-ized intersections controlled by stop or yield signs. The assumption is made that major street traffic is not affected by the minor street movement. Unsignalized intersections generally become candidates for signalization when traffic backups begin to develop on the cross street or when gaps in traffic are insufficient for drivers to yield to crossing pedestrians. See the California MUTCD, Chapter 4C for signal warrants." Revise second to last sentence to reflect wording and meaning in CAMUTCD, section 4C.05: Unsignalized intersections generally become candidates for signalization when traffic backups begin to develop on the cross street or when the traffic volume on the major street is so heavy that pedestrians experience excessive delay in crossing the major street. Also include information on bicycle signal warrants. (MUTCD section 4C.102) Supporting Documentation: CAMUTCD Chapter 4	Comment did not result in a HDM change.	Reference to California MUTCD is already included.
24E-085	Chapter 400; Index 403.3		Draft Text: "Class II bikeway crossings at railroads follow similar guidance to Class I bikeway crossings at railroads, see Index 1003.5B and Figure 403.3B." Including this tiny bit of discussion of grade crossings in the intersection chapter will result in it getting lost and seems pointless. We recommend removing this sentence and moving this discussion back to Chapter 1000.	Comment did not result in a HDM change.	A goal of this update is to redistribute, as appropriate, guidance that has been in Chapter 1000 to other locations in the HDM based upon the subject matter being discussed.

24E-086	Chapter 400; Figure 403.3B	Railroad Crossing Class II Bikeway	Including this tiny bit of discussion of grade crossings in the intersection chapter will result in it getting lost and seems pointless. We recommend removing this sentence and moving this discussion back to Chapter 1000.	Comment did not result in a HDM change.	A goal of this update is to redistribute, as appropriate, guidance that has been in Chapter 1000 to other locations in the HDM based upon the subject matter being discussed.
24E-087	Chapter 400; Index 403.6		Draft Text: "Intersections with right-turn-only lanes shall be treated as shown in Figure 403.6B. Configurations that create a weaving area without defined lanes shall not be used." Last sentence conflicts with CAMUTCD and figures included in the draft HDM. We recommend deleting the last sentence.	Comment combined with other comments and resulted in a HDM change.	
24E-088	Chapter 400; Index 403.6 (1)		Draft Text: "Right-turn-only lane design including turns onto or off of freeway ramps, should make it clear than a single lane of bicycle or motor vehicle traffic is merging into an adjacent bicycle lane or mixed traffic lane. This enables merging bicyclists or motorists to recognize that motorists have the duty to yield to bicyclists who are already in the lane." It would be clearer to not mix up bicyclists and motorists throughout these statements. Recommended rewrite: Right-turn-only lane design including turns onto or off of freeway ramps, should make it clear thatn a single lane of bicycle or motor vehicle traffic is merging into an adjacent travel lane, or a single lane of bicycle traffic is merging into an adjacent bicycle lane or mixed traffic lane. This enables merging bicyclists or motorists to recognize that which user has motorists have the duty to yield to bicyclists who are already in the lane.	Comment combined with other comments and resulted in a HDM change.	
24E-089	Chapter 400; Figure 403.6A	Typical Bicycle and Motor Vehicle Movements at Intersections of Multilane Streets without Right-Turn-Only Lanes	This is a good figure, except it should show the "pedestrian style left turn" as shown but not specifically labled in the existing Figure 1003.2B. Bicyclists rarely actually "become a pedestrian" when crossing intersections, rather they sometimes choose to make left turns without merging left by making a two step left turn as shown in the old figure. We recommend that this figure be changed to delete the dotted line in the crosswalk and instead show the dotted line in this pattern, showing the pedestrian style left turn from Figure 1003.2B in the existing manual, and the dotted line should be labled "Bicyclist making pedestrian style left turn".	Comment combined with other comments and resulted in a HDM change.	
24E-090	Chapter 400; Figure 403.6B Item 4		Solid lines for bike travel through weaving area conflict with MUTCD striping in such a situation. We recommend replacing this portion of the figure with a figure based on CA MUTCD Figure 9C-3 b CAMUTCD Chapter 9, Fig 9C-3, item b	Comment combined with other comments and resulted in a HDM change.	
24E-091	Chapter 400; Figure 403.6B		The notes of this figure are unclear (particularly notes 1 and 2).	Comment combined with other comments and resulted in a HDM change.	
24E-092	Chapter 400; Index 403.11		Draft Text: "Bicycles especially are considered vehicles per the California Vehicle Code but because of their vulnerability, should have separate facilities and consideration if volumes warrant." Conflicts with definition in Chapter 62 that bicycles are not defined as vehicles in CVC. Revise to: Bicyclists should be accommodated at intersections by the inclusion of dedicated bicycle facilities including bike paths and bike lanes. When not feasible to include dedicated bicycle facilities, a wider shoulder may be considered." Clarify that the type of facility that is chosen should that take into account motor vehicle speeds, volumes, and traffic mix (e.g. trucks). On-street bikeways (Class II Bike Lanes, Class III routes) are appropriate in some cases, while Class I bike paths are appropriate in other cases.	Comment combined with other comments and resulted in a HDM change.	

24E-093	Chapter 400; Index 403.11		Draft Text: "Pedestrians can be prohibited from crossing one of more legs of an intersection if a reasonable alternative route exits." It is preferrable that pedestrian crossings are provided on all legs of an intersection. Pedestrian crossings in urban, suburban, and rural town centers with a history of safety issues should receive mitigating safety improvements before the decision is made to restrict pedestrian crossings. Recommended rewrite: "Pedestrians MAY be prohibited from crossing one or more legs of an intersection if a reasonable alternative route exists AND IF UNMITIGATABLE SAFETY ISSUES OR TRAFFIC DELAY WARRANTS IT. Supporting Documentation: http://www.fhwa.dot.gov/publications/research/safety/04100/	Comment combined with other comments and resulted in a HDM change.	
24E-094	Chapter 400; Index 403.12	Summary	Consider adding reduce speeds in advance of conflict areas, particularly in advance of pedestrian crossings	Commentary, no response required.	
24E-095	Chapter 400; Index 404.2	Design Considerations	Good additions, keep in.	Commentary, no response required.	
24E-096	Chapter 400; Index 405		Draft Text: "On low to moderate speed roadways in severely constrained situations, consid-eration may be given to reducing the minimum lane width to 10 feet with approval of a design exception if truck or bus use is low." Good. Remove "severely constrained situations" and replace with more context sensitive language, like in urban areas with traffic speeds of XX or lower... Supporting Documentation: See also"Potts, Harwood, Richard (2007). "The Relationship of Lane Width to Safety for Urban and Suburban Arterials," TRB Paper	Comment combined with other comments and resulted in a HDM change.	
24E-097	Chapter 613; Index 613.5		Draft Text: "Preferably, all new or reconstructed shoulders should match the pavement structure of the adjacent traffic lane, except when the thickness of the flexible surface course can vary to account for the difference in cross slope between the traveled way and the shoulder." Add language acknowledging that shoulders serve as bicycle travel way, and that shoulder pavement should should account for ride quality of cyclists and pedestrians. Treatments that result in rough riding surfaces (e.g. chip seal) should be avoided whenever feasible. Supporting Documentation: Caltrans Maintenance Manual Vol1, A9-A10 Comment on nonedited portion	Comment(s) beyond the scope of this HDM update.	Suggestions will be discussed with the Division of Maintenance - Pavement Program for consideration in a future HDM update that is currently being written.
24E-098	Chapter 630; Index 631.5	Rubberized (SAMI-R)	Draft Text: "SAMI-R is a rubberized chip seal." Add language to discourage use of chip seal treatments due to rough surface, which adversely affects ride quality, especially for pedestrians and cyclists. Supporting Documentation: CA HDM 632.1	Comment did not result in a HDM change.	Chip seals are a cost-effective preventive maintenace strategy used by the Department to minimize pavement life-cycle costs.
24E-099	Chapter 900; Index 902.4		Draft Text: "Sprinklers should be selected and placed to avoid overspray onto sidewalk, bikeways…" Section should reference drip irrigation as a solution to avoiding spray onto sidewalks, paths, etc.	Commentary, no response required.	Not necessary to be stated in the manual. Landscape Architects that design these facilities currently take this into consideration.
24E-100	Chapter 900; Index 903.5		Draft Text: "Bicycle parking should be located in a safe area" Consider adding that bike parking should also be located close to the rest-stop site amenities. Comment on nonedited portion	Commentary, no response required.	Not necessary to be stated in the manual. Landscape Architects that design these facilities currently take this into consideration.

24E-101	Chapter 900; Index 905	Park and Ride Standards and Guidelines	No mention of locating park and ride lots near bicycle facilities/pathways. Also, consider providing bike parking at these park and ride lots.	Comment combined with other comments and resulted in a HDM change.	
24E-102	Chapter 1000; Index 1000.1		Because the Bicycle Transportation portions of the HDM are relatively minimal and are intended primarily to provide minimum safety standards for bikeways, it would be beneficial to refer to other documents at the end of this index. Recommended wording: "Additional design guidance for bikeways can be found in the American Association of State Highway and Transportation Officials (AASHTO) “Guide for the Development of Bicycle Facilities" and the National Association of City Transportation Officials (NACTO) "Urban Bikeway Design Guide"." Supporting Documentation: Draft AASHTO Guide for the Development of Bicycle Facilities, Section 5.1 (http://design.transportation.org/Documents/DraftBikeGuideFeb2010.pdf) NACTO Urban Bikeway Design Guide (http://nacto.org/print-guide/	Commentary, no response required.	The NATCO publication is to be reviewed as a separate activity once this HDM update is completed. The HDM will be evaluated against the AASHTO guidance once it is published.
24E-103	Chapter 1000; Index 1002.1		Draft Text: "The type of facility to select in meeting the bicycle need is dependent on many factors,…" The existing sentence is unclear, because a "bicycle" doesn't need anything, rather "bicyclists" might need something, or more clearly, should be accommodated. Recommended rewrite: "Facility selection to accommodate bicyclists is dependent on many factors,…" Comment on nonedited portion	Comment combined with other comments and resulted in a HDM change.	
24E-104	Chapter 1000; Index 1001.4 (1)		Draft Text: "(1) Definitions (a) Class I Bikeway (Bike Path). Provides a completely separated right of way for the exclusive use of bicycles and pedestrians with crossflow by motorists minimized. (b) Class II Bikeway (Bike Lane). Provides a striped lane for oneway bike travel on a street or highway. (c) Class III Bikeway (Bike Route). Provides for shared use with pedestrian or motor vehicle traffic." It is problematic to continue to use the Class I, Class II, and Class III designation. This is especially true because other types of bicycle facilities need to be defined and discussed in the document (e.g. Bike Boulevards, Cycle Tracks, etc.). While some of these facilities could potentially be a subclassification of one of the existing classes (e.g. Bike Boulevards could be a type of Class III Bikeway), it would become too cumbersome this way. This system is out of step with the rest of the country, which doesn't use such a classification system. Finally, although 1002.1 (4) states that the class system should not be construed as a hierarchy, many members of the public and others continue to do just that, increasing confusion. Supporting Docyumentation: 1999 AASHTO Guide for the Development of Bicycle Facilities, page 33; Draft AASHTO Guide for the Development of Bicycle Facilities, Section 5.1 (http://design.transportation.org/Documents/DraftBikeGuideFeb2010.pdf)	Comment(s) beyond the scope of this HDM update.	Bikeway classifications are defined in the California Streets and Highways Code. Any changes to them requires legislation.
24E-105	Chapter 1000; Index 1001.4 (1)		Draft Text: "(c) Class III Bikeway (Bike Route). Provides for shared use with pedestrian or motor vehicle traffic." We recommend removing "pedestrian or" from this text. Proposed section 1003.3 (2) prohibits sidewalks designated as bikeways, so this should be removed for consistency.	Comment did not result in a HDM change.	A Bike Route designation relates to the highway/roadway. The bicyclists and vehicles use the roadbed within the roadway, while the pedestrians use the features for their benefit (sidewalks, paths, etc.) outside of the roadbed but within the roadway. Thus, the statement is correct as written.

24E-106	Chapter 1000; Index 1001.4 (2)		Draft Text: "Bikeways are one element of an effort to improve bicycling safety and convenience - either to help accommodate motor vehicle and bicycle traffic on shared roadways, or to complement the road system to meet needs not adequately met by roads." "Shared roadway" is specifically defined in section 1002.14 (1) so this is confusing, and the use of the word "needs" is problematic because it is unclear whose or what needs are of concern. Recommended rewrite: "Bikeways are one element of an effort to improve bicycling safety and convenience - either to help accommodate motor vehicle and bicycle traffic on shared roadways the street network, or to complement the road system to provide additional connectivity and route choices meet needs not adequately met by roads."	Comment combined with other comments and resulted in a HDM change.	
24E-107	Chapter 1000; Index 1001.4 (2)		Draft Text: "On-street bikeways can serve to enhance safety and convenience, especially if other commitments are made in conjunction with establishment of bikeways, such as: elimination of parking or increasing roadway width, elimination of surface irregularities and roadway obstacles, frequent street sweeping, establishing intersection priority on the bike route street as compared with the majority of cross streets, and installation of bicycle-sensitive loop detectors at signalized intersections." Full elimination of parking is not always necessary to enhance safety and convenience of bicyclists; the words "as compared with" are awkward in this context, and there are other types of detectors than loop detectors (e.g. video). Recommended rewrite: "On-street bikeways can serve to enhance safety and convenience, especially if other commitments are made in conjunction with establishment of bikeways, such as: elimination reconfiguration of parking or increasing roadway width, elimination of surface irregularities and roadway obstacles, frequent street sweeping, establishing intersection priority on for the bike route street over as compared with the majority of cross streets, and installation of bicycle-sensitive loop detectors at signalized intersections."	Comment combined with other comments and resulted in a HDM change.	
24E-108	Chapter 1000; Index 1001.4 (3)		Draft Text: "Many of the common problems are related to improper bicyclist and motorist behavior and can only be corrected through effective education and enforcement programs. The development of well conceived bikeways can have a positive effect on bicyclist and motorist behavior. Conversely, poorly conceived bikeways can be counterproductive to education and enforcement programs." This section could be rewritten to better reflect the synergy of the three Es discussed here (Education, Enforcement, and Engineering).	Comment combined with other comments and resulted in a HDM change.	
24E-109	Chapter 1000; Index 1002.1 (2)	Class I Bikeway (Bike Path)	Comment on the entire section: The Caltrans HDM is the only major bicycle facility guideline ior standard in the US that fails to recognize that the majority of "bike paths" will necessarily end up being shared with pedestrians, since paths are typically built in constrained rights-of-way where there isn't room to build separate paths. Recommendation: This description should be changed to describe "shared use paths" in addition to or instead of "bike paths". However, the language in this section should continue to encourage separation where feasible. Supporting Documentation: 1999 AASHTO Guide for the Development of Bicycle Facilities, page 33; Draft AASHTO Guide for the Development of Bicycle Facilities, Section 5.1 Comment on nonedited portion	Comment(s) beyond the scope of this HDM update.	Bikeway classifications are defined in the California Streets and Highways Code. Any changes to them requires legislation.

24E-110	Chapter 1000; Index 1002.1 (3)		Draft Text: "But a more important reason for constructing bike lanes is to better accommodate bicyclists through corridors where insufficient room exists for safe bicycling on existing streets This is a opinion-based statement that safe bicycling is unsafe where there is less room. Recommended rewrite: "But a more important reason for constructing bike lanes is to better accommodate bicyclists through corridors where insufficient room exists for side-by-side sharing of existing streets by motorists and bicylists safe bicycling on existing streets. Comment on nonedited portion	Comment combined with other comments and resulted in a HDM change.	
24E-111	Chapter 1000; Index 1002.1 (3)		Draft Text: This can be accomplished by reducing the number of lanes, reducing lane width, or prohibiting parking on given streets in order to delineate bike lanes." It isn't always necessary to fully prohibit parking to accomplish the stated goal. Recommended rewrite: "This can be accomplished by reducing the number of lanes, reducing lane width, or reconfiguring or prohibiting parking on given streets in order to delineate bike lanes. Comment on nonedited portion	Comment combined with other comments and resulted in a HDM change.	
24E-112	Chapter 1000; Index 1002.1 (3)		Draft Text: "If bicycle travel is to be controlled by delineation, special efforts should be made to assure that high levels of service are provided with these lanes." As stated earlier, the purpose of bike lanes is to improve conditions for bicyclists, not "control bicycle travel". Suggested rewrite: "If bicycle travel is to be **delineated** ~~controlled by delineation~~, special efforts should be made to assure that high levels of service are provided with these lanes. Comment on nonedited portion	Comment combined with other comments and resulted in a HDM change.	
24E-113	Chapter 1000; Index 1003.1		Draft Text: "However, experience has shown that if regular pedestrian use is anticipated, separate facilities for pedestrians are necessary to minimize conflicts." This sentence isn't new in the HDM (it was in the old version), but it's a strong statement of seeming fact, that isn't fact. To say that separate pedestrian facilities are NECESSARY is a very strong statement. Additionally, the sentence starts with "if regular pedestrian use is anticipated" which is probably true for the vast majority of "bike paths" in the state, at least any that are located within an urban or suburban area. It's important to encourage separate facilities as much as possible, but the reality of the situation is that there is often no room for such facilities. The HDM needs to catch up with other documents nationally and accept the fact that most paths will end up being shared use. See other comments about revising and adding to the types of bikeways defined and described in the HDM. Supporting Documentation: 1999 AASHTO Guide for the Development of Bicycle Facilities, pages 33, 35-36; Draft AASHTO Guide for the Development of Bicycle Facilities, Sections 5.1 and 5.2.1	Comment combined with other comments and resulted in a HDM change.	

24E-114	Chapter 1000; Index 1003.1		Draft Text: "Dual use by pedestrians and bicycles is undesirable, due to the significant differences in pedestrian and bicyclist speeds and maneuverability, and the face that pedestrians do not walk in straight predictable lines, especially when using a bicycle path. Pedestrians may be walking with pets on leashes or young children walking or riding toys, which creates additional risk of conflicts where the two should be separated wherever possible." Continuing on the comment on the previous sentence, these sentences make broad generalizations that may not be appropriate. At the very least, the word "sometimes" should be added to read, "…pedestrians sometimes do not walk in straight predictable lines...". In fact some pedestrians walk very straight on paths, because they are aware of potential conflicts if they don't. The other problem with these generalizations is that the significant differences in speeds and maneuverability aren't just between pedestrians and bicyclists, but between different individuals in the same user group. For example, a group of road cyclists on their weekly saturday ride will likely be riding in a straight line, (probably 2 abreast) at speeds around 20 mph; but the family with two kids age 6 and 9 will likely be riding at around 8 mph with a fair amount of weaving on the path. Likewise pedestrians vary: a jogger could be traveling at 8 mph (as fast as the family on bikes) and in a nice straight line, but a parent walking with the 3-year-old child on a kick-bike might be traveling 1 to 2 mph with the child weaving all over the path. And I haven't even started describing skaters of all types, and the many other users now seen on a typical urban path. For all of these reasons, the HDM needs to define "shared use path" and include appropriate guidance on how to allocate the space between various users (or not - due to the huge variety of users as described above, in many cases it's best to just have one wide path, perhaps with a centerline and even two lanes marked in each direction, and the wide cross section of users use the same space with slower traffic keeping right and faster traffic passing on the left). Supporting Documentation: Draft AASHTO Guide for the Development of Bicycle Facilities, Sections 5.1 and 5.2.1	Comment combined with other comments and resulted in a HDM change.	
24E-115	Chapter 1000; Index 1003.1		Draft Text: "Sidewalk facilities are not Class I facilities because they are primarily intended to serve pedestrians." Should read "Class I bikeways" (not "facilities).	Comment combined with other comments and resulted in a HDM change.	
24E-116	Chapter 1000; Index 1003.1		Draft Text: "These prohibitions can be communicated by signing." Suggest "reinforced" instead of "communicated."	Comment resulted in a HDM change.	
24E-117	Chapter 1000; Index 1003.1 (1)		Draft Text: "The minimum paved width for a two-way bike path shall be 10 feet." We agree that 10 feet is a good minimum for a two-way path. However, the HDM should allow for 8' minimum in some circumstances. Recommend incorporating text from the draft AASHTO Bike Guide that does a good job explaining this: "In very rare circumstances, a reduced width of 8 feet (2.4 m) may be used where the following conditions prevail: > Bicycle traffic is expected to be low, even on peak days or during peak hours. > Pedestrian use of the facility is not expected to be more than occasional. > Horizontal and vertical alignments provide safe and frequent passing opportunities. > The path will not be regularly subjected to maintenance vehicle loading conditions that would cause pavement edge damage." Supporting Documentation: Draft AASHTO Guide for the Development of Bicycle Facilities, Section 5.2.1	Comment combined with other comments and resulted in a HDM change.	

24E-118	Chapter 1000; Index 1003.1 (1)		Draft Text: "A minimum 2-foot wide shoulder area, composed of the same pavement material as the path or decomposed granite, free of vegetation, shall be provided adjacent to the traveled way of the path" This 2-foot wide shoulder area is important, but this language is too restrictive since it only offers the same material as the path or decomposed granite. At the very least it should include other paved surfaces - a very effective way of constructing a long-lasting path is to use an asphalt path with flush concrete curbs, that could make up a portion of this graded area. Additionally, the "free of vegetation" language precludes even grass, which can be maintained as a recoverable surface; for example an asphalt path, a 6" to 12" flush concrete curb, and then grass; this results in a very recoverable surface and a long-lasting installation. Lastly, some guidance should be provided here as to the slope of this shoulder area. The AASHTO Bike Guide recommends 6:1 slope maximum. Supporting Documentation: 1999 AASHTO Guide for the Development of Bicycle Facilities, pages 36; Draft AASHTO Guide for the Development of Bicycle Facilities, Section 5.2.1	Comment combined with other comments and resulted in a HDM change.	
24E-119	Chapter 1000; Index 1003.1 (1)		Draft Text: "If all or part of the shoulder is paved, it is to be delineated from the traveled way of the path with an edgeline." This isn't necessary if the paving material of the shoulder is different. Suggested wording: "If all or part of the shoulder is paved with the same material as the path, it is to be delineated from the traveled way of the path with an edgeline."	Comment combined with other comments and resulted in a HDM change.	
24E-120	Chapter 1000; Index 1003.1 (1)		Draft Text: "Where the paved width is wider than the minimum required, the unpaved shoulder area may be reduced proportionately." This seemingly contradicts the earlier statement requiring an edgeline for the shoulder. And it seems that a shoulder should be used on every path regardless of width. This seems like carte blanche to just widen the path and eliminate the shoulder, which may not be appropriate. Suggest eliminating this sentence.	Comment combined with other comments and resulted in a HDM change.	
24E-121	Chapter 1000; Index 1003.1 (1)		Draft Text: "If there is an adjacent pedestrian walkway, the edge of the traveled way of the bicycle path shall be separated from the pedestrian walkway by a minimum width of 5 feet of unpaved material." This is a very strong "shall" statement, that isn't supported by other design guidelines including the draft AASHTO Guide. Separation should be encouraged, but to make it a requirement is a bit too much. Additionally, this contradicts the statement in the previous paragraph that states that a wider shoulder area can serve as a running or walking path; which seems appropriate. We suggest that the document encourage separation but not require it. The document should also call for a minimum width of an adjacent or separated pedestrian path. The draft AASHTO bike guide calls for 15 feet total (10 feet for bicyclists and 5 feet for pedestrians (10 plus 6 would be even better). Supporting Documentation: Draft AASHTO Guide for the Development of Bicycle Facilities, Section 5.2.1	Comment combined with other comments and resulted in a HDM change.	
24E-122	Chapter 1000; Index 1003.1 (1)		Draft Text: "The 5-foot area of unpaved material may include the bicycle path shoulder, or a continuous barrier with a minimum height of 42 inches to deter path and walkway users from using the combined paths as a single facility." If there is a barrier, it seems that the recommended 5 feet of separation is more than needed, as long as the path shoulder requirement is met.	Comment combined with other comments and resulted in a HDM change.	

24E-123	Chapter 1000; Index 1003.1 (2)		Draft Text: "If a wide path is paved contiguous with a continuous fixed object (e.g., fence, wall, building), a 4-inch white edge line, 2 feet from the fixed object, is recommended to minimize the likelihood of a bicyclist hitting it." The word "wide" needs to be defined in this context. Additionally, it should be clarified if this edge line is recommended on bridges, since the bridge rail is a continuous fixed object.	Comment combined with other comments and resulted in a HDM change.	
24E-124	Chapter 1000; Index 1003.1 (2)		Draft Text: "The clear width of a bicycle path on structures between railings shall be not less than 12 feet. It is desirable that the clear width of structures be equal to the minimum clear width of the path plus shoulders (i.e., 14 feet)." We support this change from 8 feet to 12 feet and the desirability of path width plus 2' shoulders, but it should be clarified if edgelines would be recommended as described in Section 1003.1 (1) and inthe sentence immediately preceeding these sentences. It seems that edge lines would be unnecessary on bridges since the bridge rail provides defined edge and maintaining an edge line on a long bridge would be challenging.	Comment combined with other comments and resulted in a HDM change.	
24E-125	Chapter 1000; Index 1003.1 (3)		Draft Text: "For application and placement of signs, see the California Manual on Uniform Traffic Control Devices (California MUTCD), Section 9B.01. For pavement marking guidance, see the California MUTCD, Section 9C.03." This text refers to only the first section of each of the chapters of the CA MUTCD. Recommend that this be changed to Chapter 9B for signs and Chapter 9C for markings. Alternatively, it would be possible to select all of the sections of each of these chapters that specifically refer to signs or markings for paths (as opposed to bike lanes or other facilities); however, the sections are likely to change as the MUTCD is updated, so this may not be advisable. Supporting Documentation: CA MUTCD Chapter 9B and Chapter 9C Comment on nonedited portion	Comment resulted in a HDM change.	
24E-126	Chapter 1000; Figure 1003.1A		3' dimension on the right side of the figure. It is not clear what this 3' dimension is intended to represent. Presumably it is the 3' clear to obstructions, but this needs to be redrawn for clarity.	Comment combined with other comments and resulted in a HDM change.	
24E-127	Chapter 1000; Figure 1003.1A		Sign shown on the left side of the image. Per the CA MUTCD, sign height is required to be a minimum of 4' to a maximum of 5' above the path. Compared to the scale of the adjacent cyclist, and the scale of the sign itself, the sign height appears to be higher than this recommended height. Correcting this figure would reduce the likelihood of signs being placed too high. Supporting Documentation: CA MUTCD Section 9B.01	Comment combined with other comments and resulted in a HDM change.	
24E-128	Chapter 1000; Figure 1003.1B		"10' (Min) Unpaved" between edges of pavement. This change from 5 to 10 feet in the HDM seems to have been done arbitrarily, without the support of research. Indeed greater separation is desirable, but doubling the minimum separation seems like overkill. 1999 AASHTO Guide for the Development of Bicycle Facilities, pages 35; Draft AASHTO Guide for the Development of Bicycle Facilities, Section 5.2.2	Comment combined with other comments and resulted in a HDM change.	

24E-129	Chapter 1000; Index 1003.1 (4)		Draft Text: "Where traffic is not heavy, stop or yield signs for bicyclists may suffice. [several paragraphs later]: Even when crossing within or adjacent to the pedestrian crossing, stop or yield signs for bicyclists should be placed to minimize potential for conflict resulting from turning autos." This is not new text (it is in the existing HDM), but it contradicts the CA MUTCD. These sentences imply or suggest that stop or yield signs should be placed facing cyclists. However, the CA MUTCD has a detailed section (9B.03) that explains how right-of-way assignment should be accomplished at path/roadway intersections, specifically suggesting that the stop or yield signs should not always be placed on the path. Recommend that these sentences be deleted entirely or the words "for bicyclists" be removed from each sentence. Supporting Documentation: CA MUTCD Section 9B.03 Comment on nonedited portion	Comment combined with other comments and resulted in a HDM change.	
24E-130	Chapter 1000; Index 1003.1 (4)		Draft Text: "It is discouraged to combine a bicycle path with a crosswalk at the intersection of two roadways." What is the alternative to this arrangement? This sentence seems to contradict an existing sentence in the next paragraph, which states: "When crossing an arterial street, the crossing should either occur at the pedestrian crossing, where motorists can be expected to stop, or at a location completely out of the influence of any intersection to permit adequate opportunity for bicyclists to see turning vehicles." This existing sentence is much better than the new one. Recommend removing the sentence shown (above) and using the existing sentnence, perhaps modified to encourage the location out of the influence of the intersection.	Comment combined with other comments and resulted in a HDM change.	
24E-131	Chapter 1000; Index 1003.1 (4)		Draft Text: "Bicycle versus motor vehicle collisions typically occur at intersections, when bicyclists enter pedestrian crosswalks." Collisions between bicyclists and motor vehicles occur in many different ways - this sentence implies that this is the predominate cause of bike/MV crashes. Where is the research that supports this statement? Recommend either removing the sentence or changing "typically" to either sometimes" or "often", depending on what is supported by research.	Comment combined with other comments and resulted in a HDM change.	
24E-132	Chapter 1000; Index 1003.1 (4)		Draft Text: "See the California MUTCD, Section 9B.03 and Figure 9B-7 for guidance on signals and signs for right of way assignment of bicycle path intersections." Reference to CA MUTCD Section 9B.03 is very appropriate, and this supports removal of the two existing sentences that contradict that section (see earlier comment). However, Figure 9B-7 does NOT provide guidance on right-of-way assignment, rather it is just an EXAMPLE figure of signing and marking for shared use paths. Overuse of this figure has resulted any DOZENS if not HUNDREDS of path/roadway intersections in California being signed incorrectly, with improper right-of-way assignment. The draft AASHTO Bike Guide includes four similar figures to show the four different ways that signs can be placed at path/roadway intersections. We recommend that "and Figure 9B-7" should be removed from the sentence. Additionally, the words "signals and" should be removed from the sentence since CAMUTCD Part 9 does not address the use of signals to assign right-of-way. The words "signs for" are also unnecessary in this context. Supporting Documentation: CA MUTCD Section 9B.03; Draft AASHTO Guide for the Development of Bicycle Facilities, Exhibits 5.17, 5.18, 5.19, and 5.20.	Comment did not result in a HDM change.	References still desired. Earlier in this section, the text recommends that the designer discuss the proposed sign details with their Traffic Liaison who should be aware of the use of the California MUTCD.

24E-133	Chapter 1000; Index 1003.1 (5)		Draft Text: "The minimum separation between the edge of pavement of a bicycle path and the edge of pavement or curb of a road or street shall be 10 feet." This change from 5 to 10 feet in the HDM seems to have been done arbitrarily, without the support of research. Indeed greater separation is desirable, but doubling the minimum separation seems like overkill. The AASHTO Bike Guide and other documents nationally use 5-foot minimum separation. Is there research supporting the change from 5 to 10 feet? Recommend changing this back to 5' minimum. Supporting Documentation: 1999 AASHTO Guide for the Development of Bicycle Facilities, pages 35; Draft AASHTO Guide for the Development of Bicycle Facilities, Section 5.2.2	Comment combined with other comments and resulted in a HDM change.	
24E-134	Chapter 1000; Index 1003.1 (5)		Draft Text: "Bike paths immediately adjacent to streets and highways are not recommended." This statement is a bit strong. The AASHTO Bike Guide is much more nuanced about this issue, stating that independent alignments are preferable, clearly laying out the challenges with paths next to roadways, and then identifying situations where paths next to roadways may be considered. We recommend expanding on this issue somewhat. Additionally, the HDM should start discussing Cycle Tracks, since it is quite likely that many jurisdictions are going to want to try this type of facility in the near future. We recommend that the HDM provide at least a small amount of information on cycle tracks, their benefits and challenges, cautionary notes, and design issues that must be addressed. Supporting Documentation: Draft AASHTO Guide for the Development of Bicycle Facilities, Section 5.2.2; NACTO Urban Bikeway Design Guide	Comment(s) beyond the scope of this HDM update.	The HDM will be evaluated against the AASHTO guidance once it is published.
24E-135	Chapter 1000; Index 1003.1 (5)		Draft Text: "They can increase mobility issues for path users wherever driveways or roads intersect the path." It is unclear what is meant by this sentence. Recommend changing "issues" to "challenges".	Comment combined with other comments and resulted in a HDM change.	
24E-136	Chapter 1000; Index 1003.1 (7)		Draft Text: "For stopping sight distance, the minimum design speed for bike paths shall be 25 miles per hour except as noted in Table 1003.1." This sentence is repeated twice in two adjacent paragraphs. We agree that a minimum design speed of 25 mph is only important for stopping sight distance. However, there should be some caveats about grades. On long grades, cyclists simply won't be traveling that fast and there should be some allowance for lower speeds on uphill grades. Additionally, the HDM draft has NO recommendation for minimum or typical design speeds for all of the other design criteria and geometric features of a path (besides stopping sight distance). We recommend that the second instance of this duplicate sentence should be revised to refer to a recommended design speed and a minimum design speed for other design criteria and gometric features. The draft AASHTO Bike Guide states that a design speed of 18 mph is sufficient in most cases and recommends a minimum design speed of 14 mph. The draft AASHTO Guide recommends selecting design speeds in 2 mph increments when below 20 mph, because the range of speeds is relatively small. The reduced design speed recommendations in the draft AASHTO Bike Guide were based in part on a research report that measured actual speeds on paths (FHWA-HRT-04-103). Supporting Documentation: Draft AASHTO Guide for the Development of Bicycle Facilities, Section 5.2.4.; "Characteristics of Emerging Road Users and Their Safety" (FHWA-HRT-04-103).	Comment combined with other comments and resulted in a HDM change.	

24E-137	Chapter 1000; Index 1003.1 (7)		Draft Text: "Installation of "speed bumps", gates, barrier, posts, fences or other similar surface obstructions, intended to cause bicyclists to slow down in advance of intersections or other geometric constraints, shall not be used." These are good recommendations, but the sentence structure is problematic. Recommend rewrite as follows: "Installation of "speed bumps", other similar surface obstructions, gates, barriers, posts, or fences or other similar surface obstructions, intended to cause bicyclists to slow down in advance of intersections or other geometric constraints, shall not be used."	Comment combined with other comments and resulted in a HDM change.	
24E-138	Chapter 1000; Index 1003.1 (8)		Draft Text: "The minimum radius of curvature negotiable by a bicycle is a function of the superelevation rate of the bicycle path surface, the coefficient of friction between the bicycle tires and the bicycle path surface, and the speed of the bicycle." The draft AASHTO Bike Guide has transitioned to the lean angle formula as the recommended formula for design, due to the fact that bicyclists' comfort is better measured by how much they are comfortable leaning over (since it is a two-wheeled device/vehicle), as opposed to the possibility of losing traction in a corner. The vast majority of cyclists, don't turn through path curves at anywhere near the speed that they might possibly slide out, as they are leaned over too much to be comfortable before they get to that speed. We recommend transitioning the HDM to use the lean angle formula as well, with 20 degrees as the maximum comfortable lean angle (the draft AASHTO Bike Guide uses 20 degrees based on research on how fast cyclists actually go through corners (FHWAHRT-04-103)). Supporting Documentation: Draft AASHTO Guide for the Development of Bicycle Facilities, Section 5.2.5.; "Characteristics of Emerging Road Users and Their Safety" (FHWA-HRT-04-103). Comment on nonedited portion	Comment(s) beyond the scope of this HDM update.	The HDM will be evaluated against the AASHTO guidance once it is published.
24E-139	Chapter 1000; Index 1003.1 (8)		Draft Text: "For all bicycle path applications the superelevation rate is 2 percent." We support this recommendation for maximum 2% cross slope. However, it would be useful to have some additional information about how this was chosen, presumably based on the fact that wheelchair users may choose to use paths, and this is the maximum cross slope to provide accessibility. If the lean angle formula is used instead of the superelevation formula for horizontal curvature, then a new section simply called "Cross Slope" should be added, and the title of section 1003.1 (8) should be simply "Horizontal Alignment". As described in a subsequent comment about drainage, a 1% minimum cross slope should be sufficient, so we recommend that the Cross Slope section state a cross slope tolerance from 1% minimum to 2% maximum.	Comment combined with other comments and resulted in a HDM change.	

24E-140	Chapter 1000; Index 1003.1 (8)		Draft Text: "Extrapolating from values used in highway design for motorized vehicles, design friction factors for bicycles on paved surfaces can be assumed to vary from 0.31 at 15 miles per hour to 0.21 at 30 miles per hour." This extrapolation is also in the AASHTO Bike Guide, however, this same statement (with friction factors 0.01 different than those included here) has been included in the AASHTO Bike Guide since 1981, and probably in the CA HDM since whenever Chapter 1000 was first developed. In the meantime, curve design for motorized vehicles has evolved and the side friction factors in the AASHTO Green Book and the Caltrans HDM (See Figure 202.2) have changed over time. Rather than relying on a decades-old extrapolation that has virtually no meaning today, we recommend that the HDM adjust its formula and or friction factors based on research that identified how fast cyclists actually turn through curves of varying radii (FHWA-HRT-04-103). The easiest way to do this would be to rely primarily on the lean angle method outlined in the draft AASHTO Bike Guide. Alternatively, the superelevation formula could be used and the side friction factors could be calculated on the data presented in FHWAHRT-04-103. Supporting Documentation: Draft AASHTO Guide for the Development of Bicycle Facilities, Section 5.2.5.; "Characteristics of Emerging Road Users and Their Safety" (FHWA-HRT-04-103).	Comment(s) beyond the scope of this HDM update.	The HDM will be evaluated against the AASHTO guidance once it is published.
24E-141	Chapter 1000; Table 1003.1	Bike Path Design Speeds	Based on the preceeding text, it seems that this table only applies to path design speeds for stopping sight distance, but the table is labled this way. We recommend that the table be labled to refer to design speeds for stopping sight distance, and a new table be developed for other design criteria and geometric features. An alternative solution would be to re-do the values in this table to refer to design speeds for most criteria, with a note at the bottom stating that 25 mph is the minimum design speed for Stopping Sight Distance.	Comment combined with other comments and resulted in a HDM change.	
24E-142	Chapter 1000; Figure 1003.1C	Design Speeds 15, 20, 25, 30	The draft AASHTO Bike Guide suggests selecting design speeds in 2 mph increments, due to the fact that the range of speeds is much lower. This figure and other figures with design speed as a variable would be more useful if speeds at 2 mph increments were included between 14 mph and 20 mph. Supporting Documentation: Draft AASHTO Guide for the Development of Bicycle Facilities, Section 5.2.4.	Comment(s) beyond the scope of this HDM update.	The HDM will be evaluated against the AASHTO guidance once it is published.
24E-143	Chapter 1000; Figure 1003.1D	f = Coefficient of friction (use 0.25)	The draft AASHTO Bike Guide now includes a coefficient of friction of 0.16 for braking distance, based on the actual stopping distances found in a research study (FHWA-HRT-04-103). It might be useful to adjust the California HDM to be the same, or at least come up with a new number based on the research study. However, as a cautionary note, the 0.16 value results in stopping distances going to infinity at about 14 to 16 percent grade. In other words, theoretically, cyclists can't stop at all on grades steeper than 14 to 16 percent, a theory that is contradicted every day by cyclists on the streets of San Francisco. Thus, it may be appropriate to reduce the friction factor to a slightly less conservative value, but still based on the research study. The research found that bicyclists have a coefficient of friction of 0.32, and then this was cut in half to represent wet pavement conditions. This may be too conservative of an assumption. Supporting Documentation: Draft AASHTO Guide for the Development of Bicycle Facilities, Section 5.2.8.; "Characteristics of Emerging Road Users and Their Safety" (FHWA-HRT-04-103).	Comment(s) beyond the scope of this HDM update.	The HDM will be evaluated against the AASHTO guidance once it is published.

24E-144	Chapter 1000; Index 1003.1 (11)		Draft Text: "Where this is not possible or feasible, to the following or combination thereof should be provided: the path through the curve should be widened to a minimum paved width of 14 feet; a yellow center line curve warning sign and advisory speed limit signs should be installed." This sentence is grammatically incorrect and it isn't clear what is being called for. It seems that the yellow line is critical to strongly encourage users to stay on one side, but the other solutions won't always be necessary. We recommend that it be made clear that the curve widening be optional, the yellow center line be mandatory (shall), and the curve warning sign be recommended (should).	Comment combined with other comments and resulted in a HDM change.	
24E-145	Chapter 1000; Index 1003.1 (12)	Grades	We recommend that this section be moved to be before the Stopping Sight Distance section (9) since grades are an input into the Stopping Sight Distance section, as well as sections (10) and (11).	Comment did not result in a HDM change.	
24E-146	Chapter 1000; Index 1003.1 (12)	Grades	Draft Text: "Bike paths grades must meet DIB 82... The maximum grade rate recommended for bike paths should be 5 percent. Sustained grades should be limited to 2 percent For grades above 5 percent, appropriate grade warning signs should be provided. The longitudinal grade is normally controlled by grade limits for pedestrian accessibility on bike paths shared with pedestrians. (12) Grades. Conformance with and interpretation of the ADA requirements, and especially maximum gradient, remains a major challenge on many Class I Bike path projects. The lack of information on this topic in Chapter 1000, conflicts between various sources, and changing interpretation of the law add to this confusion. For example, Chapter 1000 refers to grades 'above 5%', when other sources identify 5% as an absolute maximum. The use of landings on a Class I bike path also have conflicting statements. We recommend including the latest relevant language from DIB-82-04 (December 1, 2010) along with other relevant sources referred to in that memorandum. Supporting Documentation: DIB 82-04	Commentary, no response required.	DIB 82 is currntly referenced in this section of the HDM as a source of further information.
24E-147	Chapter 1000; Index 1003.1 (13)		Draft Text: "A minimum pavement thickness of 2 inches of Hot Mix Asphalt (HMA) is recommended. HMA (as described in Department of Transportation Standard Specifications), with ½ inch maximum aggregate and medium grading is recommended." Experience shows that 2 inches of asphalt over subgrade is not sufficient for path surfaces, especially if the surface is ever going to be driven on by maintenance vehicles. A total of 6 inches (combination of asphalt or concrete and the aggregate is generally necessary. We recommend patterning this text after the draft AASHTO Bike Guide states the following: "However, the total pavement depth should typically be a minimum of 6 inches, inclusive of the surface course (asphalt or Portland cement concrete) and the base course (typically an aggregate rock base)." Supporting Documentation: Draft AASHTO Guide for the Development of Bicycle Facilities, Section 5.2.9.	Comment combined with other comments and resulted in a HDM change.	
24E-148	Chapter 1000; Index 1003.1 (13)		Draft Text: "At unpaved highway or driveway crossings of bicycle paths, the highway or driveway should be paved a minimum of 10 feet on each side of the crossing to reduce the amount of gravel being scattered along the path by motor vehicles." The draft HDM includes a recommendation of paving back 15 feet for driveways in Index 205.4. This 15' dimension should be used consistently here as well.	Comment combined with other comments and resulted in a HDM change.	

24E-149	Chapter 1000; Index 1003.1 (14)		Draft Text: "For proper drainage, the surface of a bike path should have a cross slope of 2 percent." A 1 percent cross slope is sufficient for drainage, and flatter cross slopes are better for wheelchair users and hand cyclists. An advantage of allowing a 1% minimum is that it provides for a cross slope tolerance between 1% and 2% instead of a strict specification of exactly 2%. This is much easier to provide in the real world. We recommend a 1 percent minimum cross slope be shown here. Supporting documentation: Draft AASHTO Guide for the Development of Bicycle Facilities, Section 5.2.6.	Comment combined with other comments and resulted in a HDM change.	
24E-150	Chapter 1000; Index 1003.1 (14)		Draft Text: "Sloping of the traveled way in one direction usually simplifies longitudinal drainage design and surface construction, and accordingly is the preferred practice. However, the unpaved shoulders (or outer two feet of each side of paved width when the shoulders are paved) slope away from the path at 2 percent." The recommendations in the first sentence are excellent, although it might be more clear if the words "with no crown" were added after the word "direction. The guidance in the second sentence is fine for unpaved shoulders. However, if the sholder is paved (especially if paved in the same material as the path), changing the cross slope for the shoulder unnecessarily complicates drainage design and surface construction, creating the same problem that the recommendation in the first sentence is trying to avoid. Additionally other documents including the AASHTO Bike Guide (existing and draft) suggest sloping the unpaved shoulder at up to a maximum of 1:6 slope. We recommend that this 2nd sentence be changed to simply state: "However, unpaved shoulders should slope away from the path at a slope of at least 2 percent up to 1:6 slope (15%)". Supporting Documentation: 1999 AASHTO Guide for the Development of Bicycle Facilities, pages 36; Draft AASHTO Guide for the Development of Bicycle Facilities, Section 5.2.1	Comment combined with other comments and resulted in a HDM change.	FYI, Section (14) Drainage is currently (15).
24E-151	Chapter 1000; Index 1003.1 (15)		Draft Text: "Barrier posts and gates are fixed objects and being placed within the bicycle path traveled way can cause them to be an obstruction to bicyclists." It's not enough to state that posts and gates are obstructions - they are also a hazard. Recommend the following text: "Barrier posts and gates are fixed objects and being placed within the bicycle path traveled way can cause them to be an obstruction and a hazard to bicyclists." As an alternative, consider even stronger language from the draft AASHTO Bike Guide: "Barriers such as bollards, fences, or other similar devices create permanent fixed object hazards to path users." Supporting Documentation: Draft AASHTO Guide for the Development of Bicycle Facilities, Section 5.3.5	Comment did not result in a HDM change.	Conflicts with HDM editing protocols.
24E-152	Chapter 1000; Index 1003.1 (15)		Draft Text: "Also, these barriers may be considered only where safety and other issues posed by actual unauthorized vehicle entry are more serious than the safety and access issues posed to bicyclists, pedestrians and other authorized path users." For clarity, we recommend adding, "by the barriers" to the end of the sentence.	Comment combined with other comments and resulted in a HDM change.	
24E-153	Chapter 1000; Index 1003.1 (15)		Draft Text: "Design the path entry so it does not look like a vehicle access and makes intentional access by unauthorized users more difficult. Dividing a path into two one-way paths prior to the intersection, separated by low plantings or other features not conducive to motor vehicle use, can discourage drivers from entering and reduce driver error." We recommend changing "driver" to "motorist" in this section for clarity.	Comment resulted in a HDM change.	

24E-154	Chapter 1000; Index 1003.1 (15)		Drfat Text: "If the decision is made to add barriers, they should be:" The list following this text is mostly fairly good, but it could be better, and some of the items in the list don't fit in with the lead-in text, so a rewrite is necessary. There is a similar list provided in the draft AASHTO Bike Guide, which desribes many of these same issues more clearly; we recommend that the AASHTO draft version be paraphrased in the HDM. Supporting Documentyation: Draft AASHTO Guide for the Development of Bicycle Facilities, Section 5.3.5	Comment combined with other comments and resulted in a HDM change.	
24E-155	Chapter 1000; Index 1003.1 (15)		Draft Text: "If posts are used, placed so additional, non-centerline/lane line posts are located a minimum of 2 feet from the edge of the paved path or 2 feet outside of the edge line if a 12-foot minimum path width is entirely paved." With a minimum path width of 10 feet and a minimum shoulder width of 2 feet, bollards placed as recommended here won't physically restrict a motor vehicle from entering the path, so what's the point of having bollards at all?	Comment combined with other comments and resulted in a HDM change.	
24E-156	Chapter 1000; Index 1003.1 (15)		Draft Text: "Posts and gates shall be a minimum of 36 inches high and shall not be more than 4 inches in diameter." 36 inches is perhaps too low to easily be seen, the draft AASHTO Bike Guide recommends 40 inches. Additionally, bollards that are too small in diameter can't be seen well. The AASHTO Bike Guide recommends a 4" diameter MINIMUM, not maximum. We suggest that a minimum size of bollards should be 3 inches, or the same 4 inches recommended by the draft AASHTO Guide. If a maximum is to be set, perhaps it should be 6 inches or 8 inches. Supporting Documentation: Draft AASHTO Guide for the Development of Bicycle Facilities, Section 5.3.5	Comment combined with other comments and resulted in a HDM change.	
24E-157	Chapter 1000; Figure 1003.1F		Draft Text: "Refer to Figure 1003.1D to determine “S”, for a given design speed “V” " Recommend to change this as follows: "Refer to Figure 1003.1D or Figure 1003.1E to determine “S”, for a given design speed “V” and grade "G""	Comment combined with other comments and resulted in a HDM change.	Referenced Figure is now Figure 1003.C. Other Figures mentioned have been eliminated because of comments.
24E-158	Chapter 1000; Index 1003.1 (16)		Draft Text: "Lighting should also be considered through underpasses or tunnels, and when nighttime security could be a problem." It seems that perhaps lighting should be required or at least recommended through tunnels or underpasses of certain length.	Comment(s) beyond the scope of this HDM update.	Referenced section is now (17) and it has been slightly reworded but not to resolve the issue(s) raised by this comment. This comment will be discussed with the Division of Transportation Operations - Electrical for consideration as a future HDM update.
24E-159	Chapter 1000; Index 1003.2		Draft Text: "The shoulder width shall not be reduced through the interchange area. The minimum shoulder width shall match the approach roadway shoulder width, but not less than 4 feet or 5 feet if a gutter exists. Bicycle lanes shall be provided to the left of right-turn only lanes, as shown in Figure 403.6B for at grade intersections." Given the fact that Bike Lane information has been dispersed throughout the manual, it seems that this text belongs in Chapter 500,	Comment combined with other comments and resulted in a HDM change.	Discussion on this subject was edited into the rewriting of Index 502.2.
24E-160	Chapter 1000; Index 1003.3		Draft Text: "Class III facilities are shared facilities, either with motor vehicles on the street, or with pedestrians on sidewalks, and in either case bicycle usage is secondary." Bicycle usage of roadways is not secondary to motor vehicle usage of roadways. We recommend that this statement be taken out of the HDM, unless it is supported by either the California Vehicle Code or the California Streets and Highways Code.	Comment resulted in a HDM change.	

24E-161	Chapter 1000; Index 1003.3		Draft Text: "For application and placement of signs, see the California Manual on Uniform Traffic Control Devices (California MUTCD), Section 9B.01." This sentence only refers to first section of the relevant chapters of the CA MUTCD. Recommend that this be changed to Chapter 9B. Alternatively, it would be possible to select all of the sections of each of chapter 9B that specifically refer to signs for roadways (as opposed to signs for paths or bike lanes); however, the sections are likely to change as the MUTCD is updated, so this may not be advisable. Supporting Documentation: CA MUTCD Chapter 9B	Comment combined with other comments and resulted in a HDM change.	
24E-162	Chapter 1000; Index 1003.3		Draft Text: "For pavement marking guidance, see the California MUTCD." This sentence should probably specifically refer to Part 3 and Chapter 9C of the California MUTCD. Supporting Documentation: CA MUTCD Part 3 and Chapter 9C	Comment combined with other comments and resulted in a HDM change.	
24E-163	Chapter 1000; Index 1003.3	General	The HDM needs a specific section on Bicycle Boulevards, which could be considered a subcategory of Class III Bikeways. Although as mentioned earlier, the addition of several new bikeway types now and in the future begs for the removal of the Class I, II, III designations altogether.	Comment(s) beyond the scope of this HDM update.	Bicycle boulevards are a community decision and tend to be located off the State highway system. Therefore, local community guidelines apply.
24E-164	Chapter 1000; Index 1003.4		Draft Text: "Trails that are multipurpose are not bicycle paths. Multipurpose trails typically are unpaved land used by bikers, runners, equestrians, and off-road bicyclists. Multipurpose trails do not meet Class I bikeway standards. These facilities should not be signed as bicycle paths. Where equestrians are expected, a separate equestrian trail should be provided." These sentences point out the problems mentioned in our comments on the definition of Class 1 Bikeways (Bike Paths) in Section 1002.1 (2). The rest of the country has changed their nomenclature to use "Shared Use Paths". Because "Multipurpose Trails" as described here sounds very similar to "Sahred Use Paths", there is bound to be confusion with this text. Since "Bike Paths" are defined as being used by bicyclists AND pedestrians, they are actually by definition "multipurpose trails" or "shared use paths". This index should be rewritten. Here is some suggested text: "Trails that are multipurpose are not bicycle paths. Multipurpose trails typically are unpaved land Unpaved trails used by bikers, runners, equestrians, and off-road bicyclists are not bicycle paths and. Multipurpose trails do not meet Class I bikeway standards. These facilities should not be signed as bicycle paths. Where equestrians are expected, a separate equestrian trail should be provided."	Comment combined with other comments and resulted in a HDM change.	
24E-165	Chapter 1000; Index 1003.4		Draft Text: "Subtle texturing of the bikeway surface can help horses hear and identify approaching bikeway traffic as bicyclists and not predators." Is this even possible? It seems likely that any texturing that would make enough noise for horses to hear would make the surface too rough to be comfortable for bicyclists to ride. Unless this has been done and research or agency experience has shown it to work (for both horses to hear and for cyclist comfort), this sentence should probably be removed.	Comment resulted in a HDM change.	

24E-166	Chapter 1000; Index 1003.3 (3)	Shared Bus and Bikeways	Draft Text: "In general, the sharing of bus lanes and bicycles is discouraged. The shared use of BRT lanes and bicycles shall not be allowed. Bus lane bicycle sharing should be considered only under special circumstances, such as: Bus lanes and bicycles are generally not compatible, and present significant safety risks to bicyclists." What is the basis for this statement? The last sentence states that bus lanes present significant safety risks to bicyclists. We are not aware of any research that had this finding. The fact of the matter is that bicyclists share bus lanes in many locations around California and throughout the country, sometimes with specific designations and sometimes not. Unless there is research that shows that there is an actual safety problem, these sentences should be changed. From a practical point of view, when riding on streets with bus lanes, bicyclists often feel more comfortable riding in the bus lane than in adjacent travel lanes. Without a doubt, there can be operational problems between buses and bicyclists (whether or not there are bus lanes). But the prohibitive, restrictive, and discouraging sentences like those quoted here do nothing to help resolve these problems. The follow-up paragraph indicating where bus lane sharing may be considered is helpful. But without other solutions for all other circumtances, the prohibitive language isn't very helpful as written.	Comment combined with other comments and resulted in a HDM change.	
24E-167	Chapter 1000; Index 1003.5 (1)		Draft Text: "Stricter tolerances should be achieved on new construction. Shoulder rumble strips are not suitable as a riding surface for bicycles." These are two different topics and we recommend a paragraph mark be added between these two sentences.	Comment combined with other comments and resulted in a HDM change.	
24E-168	Chapter 1000; Index 1003.5 (2)		Draft Text: "Future driveway construction should avoid construction of a vertical lip from the driveway to the gutter, as the lip may create a problem for bicyclists when entering from the edge of the roadway at a flat angle. If a lip is deemed necessary, the height should be limited to 1/2-inch." This is a good recommendation, and it hasn't changed from the previous HDM version. However, Standard Plan A87A calls for a 1/2-inch lip. We recommend that Standard Plan A87A be changed to recommend no lip, but allow a 1/2-inch lip when necessary, similar to the text here. Comment on nonedited portion	Comment(s) beyond the scope of this HDM update.	Standard Plan A87A will be reviewed for potential updating upon completion of this HDM update.
24E-169	Chapter 1000; Index 1003.5 (3)		Draft Text: "The crossing shall be at least as wide as the traveled way of a Class I bikeway." This seems to imply that a bike lane would have to be widened to 10 feet at every railroad crossing. Is this statement needed at all?	Comment combined with other comments and resulted in a HDM change.	
24E-170	Chapter 1000; Index 1003.5 (3)		Draft Text: "For roads where a skew is unavoidable, the shoulder or bike lane should be widened, to permit bicyclists to cross at right angles (see Figure 1003.5)." Recommend the following change for clarity: "For roads that cross tracks at where a skew is unavoidable, the shoulder or bike lane should be widened, to permit bicyclists to cross at right angles (see Figure 1003.5)." The other problem is that the figure for bike lanes or shoulders is now included in Chapter 400 as figure 403.3B. We recommend that this figure be moved back to Chapter 1000 - its new location in Chapter 400 is about intersections, not grade crossings, so it seems pointless to have it there.	Comment combined with other comments and resulted in a HDM change.	

24E-171	Chapter 1000; Index 1003.5 (3)		Draft Text: "The California MUTCD has specific guidance on Rail and Light Rail crossing. See Parts 8 and 10." Part 10 of the CA MUTCD will be eliminated when California finalizes the adoption of the 2009 Federal MUTCD (it's been combined with Part 8). This adoption is anticipated soon, so "and 10" should be removed from this sentence. Supporting Documentation: Federal 2009 MUTCD, Part 8	Comment(s) beyond the scope of this HDM update.	The HDM will be evaluated against the California MUTCD once it is adopted.
24E-172	Chapter 1000; Figure 1003.5		Draft Text: "45° Minimum angle. If less, a stop sign should be placed." This is a ridiculous recommendation. Cyclists aren't going to stop for this stop sign and don't need to stop for this stop sign. And in fact, stopping won't necessarily make it less likely that cyclists will fall when they hit the tracks - it could actually make it more likely. Cyclists will instead take their own line within the existing paved width of the path to come as close to 90 degrees as they feel necessary for safety - thus all cyclists in both directions will want the same line. Perhaps a recommendation to widen the path at the crossing would be better. Or just leave out the stop sign recommendation and simply state that the 45° is the minimum angle. Comment on non-edited portion	Comment resulted in a HDM change.	

Commentor 25E: **Rick Marshall, Vice Chair of District 4 BAC; Deputy Director of Public Works & County Surveyor, County of Napa**
Organization: **District 4 Bicycle Advisory Committee**

Comment Number	Chapter & Index	Index Title	Comment/Issue	Resolution of Comment/Issue	Commentary, as necessary, on Resolution of Comment/Issue
25E-001	General		"we want to thank you for again and again presenting the effort to this and other committees, for explaining the Department processes and procedures, and for receiving our comments and concerns. We hope that in the future, whenever important changes are made to the HDM and other documents that affect bicycle transportation, advisory groups to the Department, such as this committee, and external stakeholders will continue to be consulted and their expertise heard."	Commentary, no response required.	
25E-002	General		Several new bicycle facility types, currently tested and implemented mostly by local agencies across California and nationwide, are not mentioned in this Draft HDM Update; in particular buffered bike lanes and cycleways that have proven to make bicycling more attractive to the bicyclists who do not feel comfortable riding in mixed traffic and sharing the road with motor vehicles. As these facilities are tested and refined, especially with regard to improving their safety at intersections, we ask that Caltrans consider facilities that prove to be innovative and safe for addition to the HDM, so that it can truly be a "living document."	Commentary, no response required.	The HDM is a "living" document and its guidance is updated as needed.
25E-003	General		We strongly encourage Caltrans to more actively engage in the testing of innovative bicycle facilities with the objective of improving safety for all users, and ultimately of getting more people to use bicycles for their everyday transportation.	Commentary, no response required.	

Please see File 25E to view comments received on Draft Pages of HDM and their resolution.

Commentor 26E: **Dave Campbell, Program Director**
Organization: **East Bay Bicycle Coalition**

Comment Number	Chapter & Index	Index Title	Comment/Issue	Resolution of Comment/Issue	Commentary, as necessary, on Resolution of Comment/Issue
26E-001	General		Overall, there is a lot of good language in the new manual, but still needs to be more specifics about how to achieve the laudatory goals.	Commentary, no response required.	
26E-002	General		First, thank you very much for hosting a public workshop on June 28 at your offices in Sacramento to discuss revisions to the Highway Design Manual. It was extremely helpful to hear your insights on the HDM and your thoughts about the Complete Streets revisions to the HDM. The public workshop really helped us focus our comments, which we provide herein.	Commentary, no response required.	

26E-003	Foreward		page 42: "*Engineering judgment must be used to apply the HDM to designs and to adjust designs to fit individual site conditions. The HDM is not intended to be a substitute for engineering knowledge, experience or judgment.*" This language is terrific and we want to encourage Caltrans to develop a mechanism that allows local jurisdictions to do just this when Caltrans' policies may differ and do so in a way that does not affect potential liability. In fact, we need a mechanism that helps reduce the liability for local jursidictions who use their judgments and come up with better designs than Caltrans. We ask for your assistance and if possible, to strengthen the language here to encourage more use of local judgment.	Commentary, no response required.	
26E-004	Chapter 80; Index 81.1	Philosophy	Page 70: This section is also terrific and says exactly what the entire Manual should say on a page by page basis. "*Proper consideration of these items requires that a facility be viewed from the perspectives of the user, the nearby community, and larger statewide interests. For the user, efficient travel, mode selection, and safety are paramount concerns. At the same time, the community often is more concerned about local aesthetic, social, and economic impacts. The general population, however, tends to be interested in how successfully a project functions as part of the overall transportation system and how large a share of available capital resources it consumes. Therefore, individual projects must be selected for construction on the basis of overall system benefits as well as community goals, lans, and values. transportation needs associated with the State highway system user needs.*"	Commentary, no response required.	
26E-005	Chapter 80; Index 81.2	Highway Context	Page 71: This section says it all and says it very well–Kudos to Caltrans. How does this section apply to the rest of the manual. Some examples may help, either real examples from California communities, or some theoretical examples. In addition, what kinds of trainings will Caltrans engineers receive in this area? How are they taught, moving forward, to understand that "*A 'one-size-fits-all' design philosophy is not departmental policy, nor its design philosophy. Designers need to be aware of and sensitive to land use, community context and the associated user needs of the facility. ……..Designing transportation facilities that integrate the local transportation and land uses while making the design responsive to the other needs of the community, such as walking and bicycling, support the livability of the community and is usually a complimentary goal in addition to meeting the project planning and project development processes helps to formulate context sensitive project alternatives and transportation facilities that coordinate with the local land uses.*"	Commentary, no response required.	
26E-006	Chapter 80	Place Types-Urban Areas	Page 73: **GREAT addition to the manual, needs to be continued throughout the manual.** What is meant by "*concept of the transportation facilities*" where it is said that: "*Urban areas generally are the major population centers in the state. Large numbers of people live in these urbanized areas and this growth is expected to continue. Bicycling and walking are important transportation modes in these areas and as the options for pedestrians and bicyclists expand in these areas, the percentage and number of travelers walking and bicycling is also likely to increase. State agencies and the local governmental entities, the business community and citizens groups, and the local/regional metropolitan planning organization (MPO) need to all agree upon* ***the concept of the transportation facilities*** *being provided so that the community needs an be met.*"	Commentary, no response required.	
26E-007	Chapter 80	Design Standards and Highway Context	Page 74: The following statement needs to be substantially strengthened: "*Designers should balance the interregional transportation needs with the needs of the communities they pass through and expand the options for biking, walking, and transit use.*" Caltrans must do more than "expand" options for bicycling in its projects. Caltrans must ensure that California roadways are safe and inviting for bicycling, and this must be a legal requirement, not a "guideline" or "goal." We do not see how simple laudatory statements, like the one above, are going to achieve a much safer and inviting experience for bicyclists on all of California's roadways on which bicycles are allowed to operate.	Commentary, no response required.	

26E-008	Chapter 100	Design Speed	Page 86: This is where lies our greatest concern. We disagree that the “presence of non-motorized traffic” should be the consideration when considering design speed. We feel the consideration should be “the legality of non-motorized usage of the roadway.” If bicyclists can legally use the roadway, they must be considered for design speeds. Otherwise, a dangerous roadway that is avoided by cyclists continues as a deterrent to cycling, inhibiting Caltrans and cities in achieving their goals of increased walking and bicycling. In addition, the idea that motorists should be able to establish the design speed of a roadway based on their perceptions can no longer withstand the test of reality out on our roadways. Motorists simply are not paying as much attention to their driving as they use to, and many continue to use cell phones and send text messages while driving. The ‘perceptions’ of these motorists should not control any analysis of a roadway’s minimum design speed. If anything, these types of motorists behavior should dictate much lower maximum speeds.	Commentary, no response required.	
26E-009	Chapter 100	Design Speed Charts	Page 88: Our grave concerns continue strongly here as well. Given the data teaching us of fatalities and seriousness of injuries in crashes involving cars going 30mph and faster, why is not is not engineering malpractice to establish a design speed of 30mph or higher on roadways where pedestrians cross the street and bicyclists share the roadway with cars? A pedestrian is 8 times more likely to be killed by a car going 30mph compared with a car going 20mph. Many European cities establish slow speed zones of 19mph (30kph) for this very reason. School zones in California allow for slower speeds. Overall, there certainly is precedence here and abroad for designing for slower speeds, and Caltrans needs to draw upon these experiences for all roadways used by bicyclists and pedestrians. Why not establish once and for all that roadway design speeds shall not exceed 30mph for roadways used by pedestrians and bicyclists? In other words, where design speeds are determined in need of being higher than 30mph, there should be safe separation from traffic for bicyclists and pedestrians. Short of this, maximum speeds should be 30mph, period! Sorry to be so firm about this, but our Bicycle Coalition fails to appreciate the justification of moving more cars, or moving cars faster, at the cost of human life and limb.	Commentary, no response required.	
26E-010	Chapter 200	Bicycle Traffic	Page 134: We disagree that “….designing for bicycle traffic and designing for motor vehicle traffic are similar and based on the same fundamental transportation engineering principles.” Design considerations for bicyclists are very different. It is not enough to simply say that bicyclists go slower. When bicyclists and motorists need to merge or cross each others path of travel, two things in particular are of the utmost concern: (1) that speed differentials make movements for bicycles much more difficult and with consequences far greater for slight errors of judgment, and (2) motorists, more and more, are paying less attention to their surroundings, both due to the quieter nature of cars and their sleeker designs, as well as added distractions within the interior of cars, including cell phones, promoting bicycling as an everyday means of transportation and recreation since 1972 PDA’s, stereos, etc. The HDM needs to fully take this into consideration and start addressing the conflict zones between bicyclists and cars and design roadways accordingly.	Commentary, no response required.	
26E-011	Chapter 200	Bicycle Traffic	Page 134: The statement that “Generally speaking, bicycle travel can be enhanced by improvements to the right-hand portion of roadways, where bicycles are generally expected to operate. When feasible, a wider shoulder should be considered since bicyclists may use shoulders for travel, and shoulders provide bicyclists an opportunity to pull over to let faster traffic pass.” We support wider shoulders, no doubt, but this statement is such a dangerous oversimplification of the safety needs of bicyclists. Caltrans needs to further expand this concept in the HDM to include specific design guidelines based on vehicle speeds, volumes of traffic and roadway context, rather than lumping all situations into a “shoulder suffices” summary. In addition, most crashes occur at intersections, not along the roadway therebetween and this statement completely ignores this reality. Having said this, we do appreciate that Caltrans has come out with a Complete Intersections Guide, and perhaps it can be incorporated by reference into the HDM.	Commentary, no response required.	
26E-012	Chapter 300	Travel Lane Width Minimums	Page 198: A 12 foot minimum for travel lane widths for cars is unneccessarily too high. The minimum should be 9-10’, with allowances for 12’ where needed and feasible and where safe and inviting bicycle travel is accommodated. In addition, the minimum bike lane width of 6’ for roadways with 40mph and up should also include a buffer space between the bike lane and the travel lane. In otherwords, bicycles should not be side-by-side with cars going 40-60mph.	Commentary, no response required.	

26E-013	Chapter 300	Reduction of Cross Section Elements Adjacent to Class II Bikeways	Page 199: This section is all “may” language, when it should be mandatory. This section should be set up so that a travel lane has a maximum width of 9-10’, with provisions for bike lanes, unless……..Caltrans can satisfy some high-level standard that allows for an exception for wider lanes where there are buses or a high volume of truck traffic. How else are traffic engineers going to provide space on roadways for bicyclists to safely use the roadway, if cars are granted the luxury of 12’ lanes. Most cars are 6-8’ wide, and even the widest buses are 10’.	Commentary, no response required.	
26E-014	Chapter 300	Rumble Strips	Page 199: Rumble strips should be avoided. But if used, should include longitudinal gaps that allow cyclists to move laterally between the travel lane and the shoulder.	Commentary, no response required.	
26E-015	Chapter 300; Figure 302.1A	Bike Lanes	Page 203: The minimum parking plus bike lane should be 13’, not 12’ and these two roadway elements (parking and bike lane) should not be combined in the terminology. Bike lanes should also be striped on both sides of the bike lane, not just the left hand edge.	Comment combined with other comments and resulted in a HDM change.	
26E-016	Chapter 400	Multiple Travel Lanes	Page 244: There is no comment about the added crash risk to pedestrians and bicyclists of more than one travel lane in each direction. This should be added to the HDM and be a required part of an analysis to add travel lanes.	Comment did not result in a HDM change.	The safety of all the users of the State highway is analyzed when projects are being developed.
26E-017	Chapter 400; Figure 403.6A	Intersections without Right Turn Lanes	Page 249: This Figure is really inadequate and makes no mention of vehicle speeds and context. Straight thru bike lanes should maintain their striping, with provision for right-turning cars to move into the bike lane in order to turn right.	Comment combined with other comments and resulted in a HDM change.	
26E-018	Chapter 400; Figure 403.6B	Bike Lanes with Right Turn Lanes	Page 251: Figures (1) and (2) are good but should include colored bike lane treatments. Figure (3) bike lane needs to be continuou, and (4) is all wrong. The outside travel lane should merge with the inside lane well before the bike lane jogs. so that one travel lane is establish prior to motorists making a right turn. This makes the intersection design look more like (1) and establishes the positions for all roadway users well in advance of the intersection.	Comment combined with other comments and resulted in a HDM change.	
26E-019	Chapter 400; Index 405.2	Left-turn Channelization	Page 278: There should be a paragraph added about the impact on bicyclists that left-turn pockets can have. When adding a left-turn pocket or lane to a roadway, some jurisdictions will utilize shoulder space to obtain the necessary 11-12’ for the left turn pocket. This often takes away from a usable shoulder for bicyclists, and results in cyclists having to merge and remerge with traffic right at the intersection, where cross traffic is at a maximum. There needs to be a full consideration of bicycle access when left turn pockets are considered, particularly on 3R projects.	Comment did not result in a HDM change.	This should be evaluated on a project-by-project basis during the Project Development process.

Pedestrian Groups, Associations, Coalitions, Organizations, etc.

Commentor 27E: **Wendy Alfsen, Executive Director**
Organization: **California WALKS (and District 4 Pedestrian Advisory Committee)**

Comment Number	Chapter & Index	Index Title	Comment/Issue	Resolution of Comment/Issue	Commentary, as necessary, on Resolution of Comment/Issue
27E-001	Overall		California WALKS recommends that the final D4PAC comments be adopted and included in the HDM Update.	Commentary, no response required.	
District 4 Pedestrian Advisory Committee comments:					
27E-002	General Comments		Use the term “collision” or “crash” instead of “accident” throughout the document.	Comment resulted in a HDM change.	
27E-003	General Comments		User terminology should reference users, e.g., bicyclists. Vehicular terminology should reference vehicles, e.g., bicycles.	Comment resulted in a HDM change.	
27E-004	Chapter 60: Topic 62		Provide definitions for “Traffic Calming”, “Main Street”, “Bulbout”, “Curb Extension”.	Comment combined with other comments and resulted in a HDM change.	
27E-005	Chapter 60: Index 62.10		The definition for “Design Vehicle” should be the most common vehicle at the location or should meet a minimum threshold as a share of the vehicles, rather than being the largest vehicle expected.	Commentary, no response required.	

27E-006	Chapter 80; Index 81.4 (a)		"Mobility" should be changed to "throughput" since the meaning in this section of the HDM is more akin to throughput as a result of volume compared to capacity, and increasing access for pedestrians positively increases their mobility. "Mobility" is often used (by transportation planners as well as elsewhere in the HDM) to mean something similar to access, not the inverse of access, as is intended by this section.	Comment did not result in a HDM change.	Use of the word mobility in this context is consistent with other national publications on this subject.
27E-007	Chapter 100; Index 101.1		The 6th paragraph of this section states "As high a design speed as feasible should be used." This is contrary to the complete streets principles of accommodating all users, not just motor vehicles, and also compromises the safety of pedestrians walking along and crossing state facilities. Design speed should take into account context, users, land use, desired outcome, and safety (reduced speed).	Comment combined with other comments and resulted in a HDM change.	
27E-008	Chapter 100; Table 101.2		Remove “extensive development” since urban arterials, by definition, have extensive development.	Comment combined with other comments and resulted in a HDM change.	
27E-009	Chapter 100; Table 101.2		Add “Main Street” classification for determining design speed.	Comment combined with other comments and resulted in a HDM change.	
27E-010	Chapter 100; Table 101.2		Remove 40-60 mph standard for arterial streets; keep 30-40 mph.	Comment combined with other comments and resulted in a HDM change.	
27E-011	Chapter 100; Topic 105		Include sidewalk zones from FHWA guidance: http://www.fhwa.dot.gov/environment/sidewalk2/sidewalks204.htm.	Comment combined with other comments and resulted in a HDM change.	
27E-012	Chapter 300; Index 301.1		Remove “The preferred lane width should be 12 feet”.	Comment combined with other comments and resulted in a HDM change.	
27E-013	Chapter 300; Table 302.1		Footnote 7: modify with the following language: “Where on-street parking is allowed, the parking lane/shoulder shall be 8’ wide and a striped Class II bike lane shall be provided adjacent to the parking lane, with parallel-parking stall markings placed no more than 8’ from the curb. If on-street parking is allowed and there is not enough available right-of-way for a Class II bike lane, shared lane markings (sharrows) shall be provided according to the guidance in the California Manual on Uniform Traffic Control Devices, and the parking lane/shoulder shall be 8’ wide and marked with parallel-parking stall markings placed no more than 8’ from the curb.” For visibility, this language needs to be repeated in the text. Also, Figure 301.2A needs to be updated for consistency with these standards.	Comment combined with other comments and resulted in a HDM change.	
27E-014	Chapter 300; Table 302.1		Footnote 7: Also add to footnote 7 or as a separate footnote: “Where bus stops are provided, the shoulder should be 12’ wide if next to a 12’ wide right lane, or 13’ wide if next to an 11’ wide right lane.”	Comment combined with other comments and resulted in a HDM change.	
27E-015	Chapter 300; Table 302.1		Add the following footnote: “Where bike lanes are present, shoulders may be omitted.”	Comment combined with other comments and resulted in a HDM change.	
27E-016	Chapter 300; Table 302.1		Add standards for 2' shoulders where bulbouts and busbulbs are provided under conditions specified in Index 303.4.	Comment combined with other comments and resulted in a HDM change.	
27E-017	Chapter 300; Index 303.4		Include standards for bulbouts and for 2 foot shoulders where bulbouts are present. Include in Table 302.1.	Comment combined with other comments and resulted in a HDM change.	
27E-018	Chapter 300; Index 303.4		Include additional positive language regarding busbulbs and their benefits, i.e. increase in person throughput and reduced passenger delay.	Comment resulted in a HDM change.	
27E-019	Chapter 300; Index 306.1		For elements to consider, add transit facilities and bike paths.	Comment resulted in a HDM change.	
27E-020	Chapter 300; Index 307.1		For elements to consider, add transit facilities, buses, streetcars, existing/future transit priority lanes, and bike paths.	Comment combined with other comments and resulted in a HDM change.	
27E-021	Chapter 300; Topic 308		When local streets cross over or under or have intersections/interchanges with state highways, allow reduced lane width to 11 feet when posted speed limit is 45 mph or less or 10 feet when posted speed limit is 35 mph or less.	Commentary, no response required.	
27E-022	Chapters 400 and 500		The guidance in Caltrans’ adopted Complete Intersections: A Guide to Reconstructing Intersections and Interchanges for Bicyclists and Pedestrians should be incorporated into Chapters 400 (intersections) and 500 (interchanges) of the HDM.	Comment(s) beyond the scope of this HDM update.	The publication mentioned was created to be a complimentary document to the HDM and not be a portion of it.
27E-023	Chapters 400 and 500		Include roundabout standards, consistent with Design Information Bulletin 80.	Comment combined with other comments and resulted in a HDM change.	Added a topic on roundabouts in Chapter 400 to connect HDM with Design Information Bulletin 80.
27E-024	Chapter 400; Indices 403.7 and 405.4		> Clarify language on pedestrian refuge, median, median width, and island width. > Add diagram(s) and provide urban option and different traffic island dimensions for different categories of highways.	Comment combined with other comments and resulted in a HDM change.	
27E-025	Chapter 400; Index 404.4		Add smaller design vehicle, such as the single-unit delivery truck.	Comment did not result in a HDM change.	Not needed. Smaller vehicles can be accommodated within the footprint of the vehilces include in this Index.
27E-026	Chapter 500; Figures 504.3B, 504.3C and 504.8		Revise to conform to L7, L8 and L9 type intersections (squared-up ramp terminals).	Comment combined with other comments and resulted in a HDM change.	

Commentor 28E: **Chris Holm, Project Analyst**
Organization: **WALKSacramento**

Comment Number	Chapter & Index	Index Title	Comment/Issue	Resolution of Comment/Issue	Commentary, as necessary, on Resolution of Comment/Issue
28E-001	Global		We are happy to see many of the changes contained in the draft document that should help to make highways and roads better for pedestrians. For example, Indices 62.1 Users, 81.2 Highway Context, and 81.3 Place Types give recognition to the diverse communities and users that highways and roads serve. A new section, Index 105.2 Sidewalks and Walkways, includes greater minimum widths for sidewalks that are dependent upon the presence or absence of a planting strip. Additional important additions include 62.4 (11) Pedestrian Refuge and 303.4 Curb Extensions with Figure 303.4 Bulbout.	Commentary, no response required.	
28E-002	Chapter 60; Index 62.1 (11)		(11) Traveled Way. The portion of the roadway for the movement of vehicles, exclusive of shoulders ~~and bikeways~~.	Comment combined with other comments and resulted in a HDM change.	
28E-003	Chapter 60; Index 62.4 (12)		(12) Pedestrian Refuge. A pedestrian refuge is a small section of pavement or sidewalk, completely surrounded by asphalt or other road materials, where pedestrians can stop before finishing crossing a road. It is typically used when a street is very wide, as the pedestrian crossing can be too long for some individuals to cross in one traffic **gap or** light cycle.	Comment combined with other comments and resulted in a HDM change.	
28E-004	Chapter 60; Index 62.8 (8)	Traffic	(8) Level of Service. A rating using qualitative measures that characterize operational conditions within a traffic stream and their perception by ~~motorists and passengers~~ **roadway users**.	Comment combined with other comments and resulted in a HDM change.	
28E-005	Chapter 60; Index 62.10 (1)	Users	(1) Bicycle. A bicycle is a device ~~propelled exclusively by human power~~ **upon which any person may ride, propelled exclusively by human power through a belt, chain, or gears, and having one or more wheels**.	Comment combined with other comments and resulted in a HDM change.	
28E-006	Chapter 60; Index 62.10 (9)	Users	(9) Pedestrians. ~~A person on foot or who uses a conveyance such as roller skates, skateboard, etc., other than a bicycle. A pedestrian can also be a person with a disability who uses assistive devices, such as a wheelchair, for mobility.~~ **(a) A person who is afoot or who is using any of the following:** **(1) A means of conveyance propelled by human power other than a bicycle.** **(2) An electric personal assistive mobility device.** **(b) "Pedestrian" includes a person who is operating a self-propelled wheelchair, motorized tricycle, or motorized quadricycle and, by reason of physical disability, is otherwise unable to move about as a pedestrian, as specified in subdivision (a).**	Comment resulted in a HDM change.	
28E-007	Chapter 60; Index 62.10 (11)	Users	(11) is **missing.**	Comment resulted in a HDM change.	
28E-008	Chapter 80; Index 81.1 (a)	Philosophy	(a) Need for safe and efficient transportation for all users (motorists, bicyclists, **transit riders,** and pedestrians) of the facility and transportation modes.	Comment resulted in a HDM change.	
28E-009	Chapter 100; Topic 101 Index 101.1	Selection of Design Speed	Subject to the above considerations, **minimum design speed should be used. On higher speed facilities, as high a design speed as feasible should be used.** ~~as high a design speed as feasible should be used particularly on high-speed facilities.~~ On lower speed facilities, use of above-minimum design criteria may encourage travel at speeds higher than	Comment combined with other comments and resulted in a HDM change.	

28E-010	Chapter 100; Index 105.2	Sidewalks and Walkways	The discussion of sidewalk widths in the second paragraph references Index 102.2 Design Capacities (Sidewalks) for pedestrian LOS guidelines. Sidewalk capacity alone is insufficient to determine pedestrian level of service. We suggest referencing the guidelines in the Highway Capacity Manual rather than Index 102.2, and deleting the sentence "LOS in sidewalks and walkways are primary a function of pedestrian volume and pedestrian path width." The fifth paragraph of Index 105.2 beginning with "A Policy on Geometric Design …" has pedestrian level of service as its subject, but it discusses only capacity. We suggest deleting this paragraph, although the last sentence "If adequate capacity is not provided, pedestrian mobility may be seriously impeded." would be appropriate for Index 102.2.	Comment combined with other comments and resulted in a HDM change.	
28E-011	Chapter 200; Topic 208 Index 208.4	Bridge Sidewalks	Sidewalks on bridges should be provided wherever pedestrian traffic is not prohibited in ~~urban, suburban, and rural town centers.~~ **urban or suburban areas, and city or town centers.** The minimum width of a bridge sidewalk shall be 6 feet. The recommended	Comment combined with other comments and resulted in a HDM change.	
28E-012	Chapter 200; Figure 208.10B	Combination Vehicular Barrier and Pedestrian Railings forBridge Structures	Revise figure to conform to 6' minimum sidewalk width as specified in 208.4 Bridge Sidewalks.	Comment combined with other comments and resulted in a HDM change.	
28E-013	Chapter 300; Topic 301 Index 301.2	Class II Bikeway (Bike Lane) Lane Width	(1) General. Class II bikeways (bike lanes), for the preferential use of bicycles, may be established within the roadbed, immediately adjacent to the rightmost lane,. Typical Class II bikeway configurations are illustrated in Figure 301.2A. Bicycle lanes must not be placed between the parking area and the curb. The minimum bike lane width shall be 4 feet, except where: - Posted speeds are greater than 40 miles per hour, a **minimum** 6-foot bike lane shall be provided, or - In urban, suburban, and rural main street place types, a **minimum** 5-foot bike lane shall be provided.	Comment combined with other comments and resulted in a HDM change.	
28E-014	Chapter 300; Figure 301.2A	Typical Class II Bike Way (Bike Lane) Cross Sections	Are dimensions in figure consistent with section 301.2?	Comment combined with other comments and resulted in a HDM change.	
28E-015	Chapter 300; Table 302.1	Standards for Paved Shoulder Widths on Highways	Draft Text: Footnote (7): Where parking is allowed or bus stops are provided, 13' 12 feet shoulders shall be provided. We believe the footnote is incorrect in the draft revision. Document chp0300.pdf, listed as the last updated version on the Highway Design Manual web page, uses "Where parking is allowed, 10 feet to 12 feet shoulders preferred." The narrower shoulder widths contribute to shorter pedestrian crossing distances, and the permissive language will allow street designs to match the place type.	Comment combined with other comments and resulted in a HDM change.	
28E-016	Chapter 300; Topic 305 Index 305.1	Width	Where pedestrians are expected to cross 4 or more lanes at a signalized intersection a minimum ~~6 foot wide~~ **10 foot wide by 6 foot long** pedestrian refuge island should be provided.	Comment combined with other comments and resulted in a HDM change.	

Commentor 29E: Intentionally left blank.

Commentor 30E: Intentionally left blank.

Organizations, Companies, etc.

Commentor 31E: **Jenifer Donlan, Senior Planner**
Organization: **Alta Planning + Design , Berkeley Office**

Comment Number	Chapter & Index	Index Title	Comment/Issue	Resolution of Comment/Issue	Commentary, as necessary, on Resolution of Comment/Issue
31E-001	Global		Removal of Chapter 1000 sections. While we appreciate the concept of integrating sections of the former Chapter 1000 (such as Class II bike lanes, structures, etc) into the rest of the HDM, the removal of these sections will also make it more difficult for professionals to find and use them. People seeking guidance on bikeway design will go to Chapter 1000, and not necessarily spend the time going through the entire HDM. The result will be less compliance with the HDM. We strongly recommend that these sections be integrated throughout the HDM and also included back in Chapter 1000.	Commentary, no response required.	A goal of this update is to redistribute, as appropriate, guidance that has been in Chapter 1000 to other locations in the HDM based upon the subject matter being discussed.

31E-002	Global		Missing Elements. While there may be reasons these elements are not included in Chapter 1000, they are common issues in day-to-day bikeway planning and design in California and are not covered in-depth or at all currently: a. When are side paths and/or cycle tracks appropriate, and what are the specific criteria? b. How to connect Class I bike paths to Class II bike lanes c. When does the inability to extend Class II bike lanes through intersections impact the feasibility of installing Class II bike lanes on a corridor? d. Treatment of Class II bike lanes at high speed freeway ramps e. Under crossing design guidance	Comment(s) beyond the scope of this HDM update.	Suggestions will be discussed with the California Bicycle Advisory Committee for future HDM updates.
31E-003	Global		In our review of chapters relevant to bicycles and pedestrians, we found inconsistency within separate sections of the document, as well as instances where HDM does not reflect intent or even conflicts with California Vehicle Code or CAMUTCD. We recommend a thorough review of the document by a person familiar with bicycle and pedestrian elements of these documents, with an eye toward maintaining consistency.	Commentary, no response required.	The comment provided is a goal of this update.
31E-004	Global		We would appreciate a summary of changes made to the HDM with supporting documentation for each change. Unclear why some changes have been made.	Commentary, no response required.	The goal of this chart is to provide feedback on how the comments received were addressed. In addition, Commentors can follow-up in more detail by contacting the Office of Geometric Design Standards.
31E-005	Global		Draft Text: There is no method to study or experiment with designs considered for inclusion in the HDM. While the State Engineer has the authority to approve deviations from standard design, there is no process to consider these deviations for inclusion in the Manual. Comment: Consider implementing a policy and procedure for design study/experiment similar to that in the CA MUTCD.	Comment(s) beyond the scope of this HDM update.	Currently being discussed with the California Bicycle Advisory Committee.
31E-006	Global		Add reference to research noting that pedestrian fatalities increase dramatically at higher speed collisions. Supporting Documentation: http://www.walkinginfo.org/problems/problemsmotorists.cfm Source: Knoblauch RL, Tustin BH, Smith SA, Pietrucha MT. Investigation of Exposure-Based Pedestrian Accident Areas: Crosswalks, Sidewalks, Local Streets, and Major Arterials. DOT publication FHWA-RD-87-038. Washington, DC: US Dept of Transportation; 1987. Killing Speed and Saving Lives, U.K. Department of Transportation, London, 1987	Comment did not result in a HDM change.	As a general rule, the HDM does not reference research documents. However, its guidance is largely based upon research.
31E-007	Global		Draft Text: Headers include dates of what is assumed to be the last revision. However, many pages with revisions do not have the current date. Comment: Consider using the publish date throughout the document.	Commentary, no response required.	Final publication will have pages with changes dated per department protocol.
31E-008	Chapter 40; Index 41.1		Draft Text: A variety of other programs also continued to exist to provide flexibility in determining transportation solutions and promote a multimodal system approach. Some of these programs include those that target funding for transit projects such as commuter and highspeed rail systems while others provide funds for environmental enhancement such as habitat mitigation and wetland banking. Numerous other funding categories are also available for use during the six year term of the act. Comment: Consider adding text acknowledging multimodal as including bicycle and pedestrian modes.	Comment combined with other comments and resulted in a HDM change.	
31E-009	Chapter 500; Index 504.3		Draft Text: 3) Location and Design of Ramp Intersections on the Crossroads... Where a separate right turn lane is provided at ramp terminals, the turn lane should not continue as a "free" right. It is preferred that the turn lane be controlled by a signal, stop, or yield sign. Comment: Mention the use of colored bike lanes across freeway ramps to increase the visibility of bicyclists and to minimize conflicts, per FHWA Interim Approval. Supporting Documentation: http://mutcd.fhwa.dot.gov/resources/interim_approval/ia14/ia14grnpmbiketlanes.pdf	Comment(s) beyond the scope of this HDM update.	California MUTCD issue.

31E-010	Chapter 60; Index 62.1		Draft Text: (1) Bicycle. A bicycle is a device propelled exclusively by human power. Comment: Definition too vague, and doesn't preclude skateboarders, scooters, etc... as defined in (9) pedestrians. Use California Vehicle Code definition. “A bicycle is a device upon which any person may ride, propelled exclusively by human power through a belt, chain, or gears, and having one or more wheels.” Supporting Documentation: http://dmv.ca.gov/pubs/vctop/d01/vc231.htm	Comment combined with other comments and resulted in a HDM change.	
31E-011	Chapter 60; Index 62.1		Draft Text: Pedestrians. A person on foot or who uses a conveyance such as roller skates, skateboard, etc., other than a bicycle. A pedestrian can also be a person with a disability who uses assistive devices, such as a wheelchair, for mobility. Comment: Use CVC definition for pedestrian. "467. (a) A “pedestrian” is a person who is afoot or who is using any of the following: (1) A means of conveyance propelled by human power other than a bicycle. (2) An electric personal assistive mobility device. (b) “Pedestrian” includes a person who is operating a self-propelled wheelchair, motorized tricycle, or motorized quadricycle and, by reason of physical disability, is otherwise unable to move about as a pedestrian," Supporting Documentation: http://dmv.ca.gov/pubs/vctop/d01/vc467.htm	Comment combined with other comments and resulted in a HDM change.	
31E-012	Chapter 60; Index 62.4		Draft Text: Definition of pedestrian refuge, "is a small section of pavement or sidewalk" Comment: Consider revising to be consistent with definition of "island" on page 58. "A defined area between roadway lanes where pedestrians can stop before finishing crossing a road."	Comment combined with other comments and resulted in a HDM change.	
31E-013	Chapter 60; Index 62.4		Draft Text: (1) Channelization. The separation or regulation of conflicting movements into definite paths of travel by the use of pavement markings, raised islands, or other suitable means to facilitate the safe and orderly movement of both vehicles and pedestrians. Comment: Channelization also can be used to facilitate safe and orderly movement of bicycles.	Comment combined with other comments and resulted in a HDM change.	
31E-014	Chapter 60; Index 62.4		Clarify difference between marked vs. unmarked crosswalk, so that readers understand that crosswalks do not need to be marked.	Comment(s) beyond the scope of this HDM update.	Division of Transportation Operations and California MUTCD issue.
31E-015	Chapter 60; Index 62.4		Draft Text: 12) Pedestrian Refuge. A pedestrian refuge is a small section of pavement or sidewalk, completely surrounded by asphalt or other road materials, where pedestrians can stop before finishing crossing a road. It is typically used when a street is very wide, as the pedestrian crossing can be too long for some individuals to cross in one traffic light cycle. Comment: Last sentence in definition implies that pedestrian refuges are only used at signalized intersections, which is not true. Remove last sentence.	Comment combined with other comments and resulted in a HDM change.	
31E-016	Chapter 80; Index 81.1		Draft Text: Attention should be given to such consideration as:...(d) Costs of eliminating or minimizing adverse effects on natural resources, environmental values, public services, aesthetic values, and community and individual integrity. Comment: These criteria acknowledge the negative impacts of transportation projects but do not consider opportunities. Consider adding, "or benefits of minimizing existing adverse effects."	Comment combined with other comments and resulted in a HDM change.	

31E-017	Chapter 80; Index 81.2		Draft Text: Designing transportation facilities that integrate the local transportation and land uses while making the design responsive to the other needs of the community, such as walking and bicycling, support the livability of the community... Comment: Remove the word "other", which implies that walking and bicycling are not part of the local transportation and land use needs.	Comment combined with other comments and resulted in a HDM change.	
31E-018	Chapter 80; Index 81.3		Draft Text: Downtown Cores. Comment: Add text about the importance of walking and bicycling facilities in downtown core areas, due to parking availability, employment density, and congestion mitigation.	Comment combined with other comments and resulted in a HDM change.	
31E-019	Chapter 80; Index 81.6		Draft Text: The "Main Streets: Flexibility in Design and Operations" published by the department should be consulted for additional guidance as should the FHWA publication, Flexibility in Highway Design." Comment: Include a reference to the NACTO Urban Bikeway Design Guide as a resource for providing bicycle facilities in constrained urban centers. Supporting Documentation: http://nacto.org/cities-forcycling/design-guide/	Comment(s) beyond the scope of this HDM update.	The NATCO publication is to be reviewed as a separate activity once this HDM update is completed.
31E-020	Chapter 100; Index 102.1		Draft Text: Freeways should be designed to accommodate the design year peak hour traffic volumes and to operate at a level of service determined by District Planning and/or Traffic Operations. For a rough approximation of the number of lanes required on a multilane freeway, use the following design year peak hour traffic volumes per lane at the specified level of service: Comment: Document should at a minimum mention other considerations for determining LOS beside auto traffic volumes. Highly recommend a more detailed discussion of LOS, including proposed multimodal LOS calculation methodologies. Supporting Documentation: TRB Multimodal Level of Service Analysis for Urban Streets (2008) http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_616.pdf	Comment combined with other comments and resulted in a HDM change.	
31E-021	Chapter 100; Index 102.2		Draft Text: Sidewalks are to accommodate the design year peak hourly volume at a Level of Service equal to that of the roadway or better. Comment: Add mention that volume-capacity LOS methodologies do not account for qualitative factors that directly affect pedestrians' (and cyclists') perception of safety and comfort. Refer to Caltrans's Complete Streets docs Supporting Documentation: http://www.dot.ca.gov/hq/traffops/survey/pedestrian/Complete-Intersections-AGuide-to-Reconstructing-Intersections-and-Interchanges-for-Bicyclistsand-Pedestirans.pdf; http://www.dot.ca.gov/hq/traffops/survey/pedestrian/TR_MAY0405.pdf	Comment combined with other comments and resulted in a HDM change.	
31E-022	Chapter 100; Index 105.1		Draft Text: LOS in sidewalks and walkways are primary a function of pedestrian volume and pedestrian path width. Comment: See comment for section 102.2	Comment combined with other comments and resulted in a HDM change.	
31E-023	Chapter 100; Index 110.7		Traffic Control Plans Consider revision so traffic control plans include bicycle and pedestrian travel routes. Supporting Documentation: Caltrans Operations Policy Directive 11-01	Comment combined with other comments and resulted in a HDM change.	

31E-024	Chapter 100; Index 115		Draft Text: "Generally speaking, bicycle travel can be enhanced by improvements to the right-hand portion of roadways, where bicycles are generally expected to operate. When feasible, a wider shoulder should be considered since bicyclists may use shoulders for travel, and shoulders provide bicyclists an opportunity to pull over to let faster traffic pass." Comment: This paragraph suggests roadway shoulders are the preferred location for bicycle facilities. Add language stating that further improvements beyond wide shoulders, e.g. dedicated facilities like bike lanes and separated facilities, are preferable to only wide shoulders. Shoulders often contain hazards, such as roadway debris and stopped vehicles. Dedicated facilities should be provided whenever feasible. As all agencies are required to follow the minimum criteria in the Manual consider revising the statement to: "Generally speaking, bicycle travel can be enhanced by inclusion of dedicated bicycle facilities including bike paths and bike lanes. When not feasible to include dedicated bicycle facilities, a wider shoulder may be considered since bicyclists may use shoulders for travel, and shoulders provide bicyclists an opportunity to let faster traffic pass."	Comment combined with other comments and resulted in a HDM change.	
31E-025	Chapter 200; Index 201.1	Table 201.1 Sight Distance Standards	Add "for Drivers" to table title to clarify that this does not apply to bicyclists. Add footnote to table referring readers to Chapter 1000 for bicyclist sight distance.	Comment combined with other comments and resulted in a HDM change.	
31E-026	Chapter 200; Index 201.7	Table 201.7 Decision Sight Distance	Add "for Drivers and Bicyclists" to clarify that this applies to both.	Comment combined with other comments and resulted in a HDM change.	
31E-027	Chapter 200; Index 201.7		Draft Text: Decision sight distance is measured using the 3 ½-foot eye height and ½-foot object height. Comment: Is this appropriate for bicyclist decision sight distance? If not, describe bicyclist sight distance calculations here.	Comment did not result in a HDM change.	Statement is correct and does not need alteration.
31E-028	Chapter 200; Index 208.4	Bridge Sidewalks	Draft Text: Sidewalks on bridges should be provided wherever pedestrian traffic is not prohibited in urban, suburban, and rural town centers. The minimum width of a bridge sidewalk shall be 6 feet. The recommended width should be 8 feet for pedestrian comfort. Comment: As written, reads as if sidewalks are only required in town centers in urban and suburban areas. Rephrase to "...should be provided on all urban and suburban areas, and in rural town centers, unless pedestrian traffic is prohibited."	Comment combined with other comments and resulted in a HDM change.	
31E-029	Chapter 200; Index 208.6	Bicycle and Pedestrian Overcrossings	Section is poorly written, disjointed, and incomplete. Discuss when POC's are appropriate and when they are not, particularly focusing on the challenge of ensuring use/compliance when unauthorized at-grade crossings are faster and more tempting. Provide more information on design of PUC's: width, lighting, security concerns. Supporting Documentation: 70 percent of pedestrians would use an overpass if the travel time equaled the at grade crossing travel time; Very few pedestrians would use an overpass if the travel time were 50 percent longer than the at-grade crossing travel time (AASHTO (Pedestrian Guide), 96, citing 1998 ITE study) http://web.pdx.edu/~jdill/Files/Renfro_Bike-Ped_Overcrossings_Report.pdf	Commentary, no response required.	
31E-030	Chapter 200; Figure 208.10B		Sidewalk widths shown on Figure 208.10B Combination Vehicular Barrier and Pedestrian Railings for Bridge Structures shows 4 and 5 foot sidewalks. Section 208.4 requires bridge sidewalks to be a minimum of 6 feet. Revise Figure 208.10B to show 6 foot sidewalks.	Comment combined with other comments and resulted in a HDM change.	

31E-031	Chapter 300; Index 301		Draft Text: The traveled way width is determined by the number of lanes required to accommodate operational needs. The traveled way width includes the width of all lanes and bike lanes, but does not include the width of shoulders, sidewalks, curbs, dikes, gutters, or gutter pans. Comment: Conflicts with definition of traveled way provided in 62.1, which indicates that a traveled way is "(11) Traveled Way. The portion of the roadway for the movement of vehicles, EXCLUSIVE of shoulders and BIKEWAYS" (emphasis added) Does a traveled way include bikeways or not?	Comment combined with other comments and resulted in a HDM change.	
31E-032	Chapter 300; Index 301.1		Draft Text: Exceptions: For conventional state highways...(minimum is 11 ft). The preferred lane width should be 12 feet. Last sentence re-emphasizing 12 ft lane width should be dropped as it is repetitive and undermines the intent of the exception. Travel lanes less than 12 ft in community and urban centers, under the exceptional conditions outlined, may likely be the preferred lane width for routinely accommodating pedestrian and bicycle facilities. The exception should also note that, in certain instances where pedestrian and bicycle facilities are a top priority for local communities, consideration may be given to 10 ft travel lanes. Research indicates there is little operational difference between 10 and 11 ft travel lanes under the conditions outlined/suggested by the exception. Supporting Documentation: Potts, Harwood, Richard (2007). "The Relationship of Lane Width to Safety for Urban and Suburban Arterials," TRB Paper	Comment combined with other comments and resulted in a HDM change.	
31E-033	Chapter 300; Index 301.1	Lane Width	Draft Text: The minimum lane width on two-lane and multilane highways, ramps, collector roads, and other appurtenant roadways shall be 12 feet, except as follows...For conventional State highways with posted speeds less than or equal to 40 miles per hour and AADTT (truck volume) less than 250 per lane that are in urban, suburban, city or town centers (rural main streets), the minimum lane width shall be 11 feet. See Index 81.3 for place type definitions. The preferred lane width should be 12 feet. Comment: Wide lanes can be detrimental to bicycle and pedestrian travel in that 1) promote higher vehicle speeds, which in turn promote greater injury and fatality risk for pedestrians 2) increase width of road crossings 3) minimum lane widths often preclude striping bike lanes. Suggest permitting lane widths less than 11 feet on. Remove recommendation that lane widths of 12 feet are preferred in urban, suburban, town center areas with posted speeds less than 40 mph. Supporting Documentation: See also "Potts, Harwood, Richard (2007). "The Relationship of Lane Width to Safety for Urban and Suburban Arterials," TRB Paper	Comment combined with other comments and resulted in a HDM change.	
31E-034	Chapter 300; Index 301.2		Draft Text: On streets with concrete curb and gutter, a minimum width of 3 feet measured from the bike lane stripe to the joint between the shoulder pavement and the gutter shall be provided. Comment: 3 feet of pavement is not sufficient width for bicycle operation. The width of the bicyclists' path of travel should meet bike lane minimum widths. Consider revising to 4 feet measured from the bike lane strip to the joint.	Comment did not result in a HDM change.	A 3-foot operating space between the edge stripe and the gutter joint is minimal, but it can be driven by bicyclists.
31E-035	Chapter 300; Index 301.2		Section 301.2 does not address bicycle lane width where parking is adjacent, it addresses shared parking and bicycle lanes. Consider revising section title to "Time restrictive bike lane." Bike lane width adjacent to parking is not addressed and should be. Add section here: If bike lanes are provided adjacent to parking, the minimum bike lane width shall be 5 feet to provide greater clearance between bicyclists and driver-side doors when opened.	Comment combined with other comments and resulted in a HDM change.	

31E-036	Chapter 300; Index 301.2	Class II bikeways (bike lanes)	Class II bikeways (bike lanes)...may be placed in the roadbed, immediately adjacent to the rightmost lane...(and) must not be placed between the parking area and curb. Statement does not clearly allow through bike lanes to the left of right turn lanes, a common and accepted practice. Consider an exception or qualifying statement. Prohibition of bike lanes between vehicle parking areas and the curb essentially bans consideration of protected bikeways known as cycletracks. As an innovative bicycle facility growing in popularity nationally and identified as a potentially valuable strategy for increasing bicycle mode split and reducing GHG emissions and vehicle miles traveled, the HDM should not preclude the use or funding of these facilities where prioritized by local communities on appropriate roadways. This statement should be deleted; at minimum, it should be modified to state that "careful consideration" must be given to such facilities or that they are discouraged by Caltrans in most cases. Supporting Documentation: NACTO Bikeway Design Guide	Comment combined with other comments and resulted in a HDM change.	
31E-037	Chapter 300; Figure 301.2A	1. Marked parking	Bike lane width next to parked cars should be 5 feet minimum to provide room for bicyclists to avoid opening car doors. This is required next to parking stalls in CAMUTCD. Right side of diagram: 8 + 4 = 12 not 15. Clarify diagram. Supporting Documentation: CAMUTCD Chapter 9	Comment combined with other comments and resulted in a HDM change.	
31E-038	Chapter 300; Index 301.2(2)	Parking Adjacent to Class II Bikeways.	Draft Text: Bike lanes shall not be marked next to curbs where parking is prohibited only during certain hours of the day. This type of bike lane is unsatisfactory because bicycling can occur at all hours of the day, and it is unlikely that bicycle travel will occur only during the hours of the parking prohibition. In additions, enforcement of the parking prohibition to remove vehicles parked during bike lane designation is problematic. The intent of this paragraph should be to strongly encourage full-time dedicated bicycle facilities, not to exclude innovative design or efficient use of right-of-way for bicycle accommodation under constrained conditions. As written, this statement is overly speculative (if not incorrect) and acknowledges neither the impact of nor variation in bicycle and parking demand on the decision to install Class II facilities. Supporting Documentation: The City of Palo Alto, but one of many examples, effectively utilizes time-restricted bike lanes as a critical strategy for providing dedicated bicycle facilities for the majority of the day (7am-7pm). These facilities provide essential connections for school and job-related commutes, as well as midday activities, while still allowing evening and weekend access to curbside parking for residential areas.	Comment combined with other comments and resulted in a HDM change.	
31E-039	Chapter 300; Index 303.2		Since bicycles are not prohibited on conventional highways, where the shoulder width is 4 feet, gutter pan width should be reduced to 1 foot, so 3 feet is provided between the traffic lane and the longitudinal joint at the gutter pan. For mandatory requirements regarding drainage inlet grates for bicycles, see Index 1003.6(3). As per previous comments, 3 feet of space is not sufficient for bicycle operation and does not meet minimum bike lane widths. Shoulder width shall not be less than 6 feet where 2-ft gutter pans are used, and not less than 5 ft where 1-ft gutter pans are provided.	Comment did not result in a HDM change.	
31E-040	Chapter 300; Index 303.4		Draft Text: (1) Bulbouts. A bulbout is an extension of the sidewalk into the roadway. Bulbouts should be designed according to Figure 303.4, other design elements are not shown. Bulbouts shorten crossing distances and therefore reduce pedestrian conflict time with mainline traffic. By placing the pedestrian entry point closer to traffic, bulbouts improve visibilitybetween motorist and pedestrians. They are appropriate for an urban environment and should only be placed on routes with posted speeds 35 mph or less when design vehicles are accommodated if applicable (see Topic 404). Comment: Additional benefits of bulb-outs include provision of additional walking space for pedestrian queuing at high volume crossing locations and for urban design amenities such as bicycle parking, benches, landscaping, and sidewalk commercial activity. Delete last sentence or consider revising to only include Topic 404 reference: "They are appropriate...only (for) routes with posted speeds of 35 mph or less." This statement is speculative and counter-intuitive. If there is onstreet parking along an arterial with a posted speed limit above 35mph, bulb outs may in fact be a higher priority to reduce crossing distances and improve safety so long as design vehicles are accommodated.	Comment combined with other comments and resulted in a HDM change.	

31E-041	Chapter 300; Index 303.4		Draft Text: When used, it is desirable to place bulbouts at all corners of an intersection where pedestrians are allowed to cross. Bulbouts are to be paired up at mid-block locations. Comment: Revise last sentence to read "at mid-block crossing locations." There are increasing instances of curb bulbs at strategic mid-block (non-crossing) locations as an urban amenity and economic development tool for sidewalk cafes, landscaping, etc. These features should not be excluded or discouraged.	Comment resulted in a HDM change.	
31E-042	Chapter 300; Index 303.4		Draft Text: If parking stall markings are present, the curb face of the bulbout should be setback a minimum of 2 feet from the parking stall marking. Available width for bicyclists should not be reduced along the curb face of the bulbout. Comment: A minimum 2 ft setback is overly restrictive and undermines curb bulb benefits for urban locations where posted vehicle speeds are less than 35 mph, in particular for unsignalized crossings where pedestrians must position themselves to be seen by oncoming vehicles and judge gaps in traffic. Revise paragraph to include a 1-ft minimum setback for urban conditions in order to maximize curb bulb width/benefits.	Comment combined with other comments and resulted in a HDM change.	
31E-043	Chapter 300; Index 305.1 (2)		Draft Text: Bicycle crossings through paved medians should line up with the bicycle path of travel on a highway, not with the pedestrian crosswalk. Comment: Revise and/or clarify statement to ensure compatibility with special crossing devices such as HAWK, TOUCAN, and "cross-bike" treatments that may be essential for improving unique trail or other bikeway crossings	Comment combined with other comments and resulted in a HDM change.	
31E-044	Chapter 300; Index 306.1	General Standards	Draft Text: The minimum right of way width on new construction for 2-lane highways should be 130 feet. Comment: This is very wide, and does not benefit pedestrians, as it contributes to wide intersections and may contribute to high vehicle speeds.	Commentary, no response required.	
31E-045	Chapter 300; Index 308.1		Draft Text: Shoulder width shall not be less than 5 feet when curbs with 2-foot or wider gutter pans, railings, or other lateral obstructions are adjacent to the right edge of shoulder. If gutter pans wider than 2 feet are used, then the minimum shoulder width shall be 3 feet wider than the width of the gutter pan being used. Comment: As per previous comments, 3 feet of space is not sufficient for bicycle operation and does not meet minimum bike lane widths. Shoulder width shall not be less than 6 feet when curbs with 2-foot or wider gutter pans, railings, or other lateral obstructions are adjacent to the right edge of shoulder. If gutter pans wider than 2 feet are used, then the minimum shoulder width shall be 4 feet wider than the width of the gutter pan being used.	Comment did not result in a HDM change.	A 3-foot operating space between the edge stripe and the gutter joint is minimal, but it can be driven by bicyclists.
31E-046	Chapter 400	Intersections At Grade	Chapter should refer to Caltrans' Complete-Intersections-A-Guide-to-Reconstructing-Intersections-and-Interchanges-for-Bicyclistsand-Pedestrians (2011). Supporting Documentation: http://www.dot.ca.gov/hq/traffops/survey/pedestrian/Complete-Intersections-AGuide-to-Reconstructing-Intersections-and-Interchanges-for-Bicyclistsand-Pedestirans.pdf	Comment(s) beyond the scope of this HDM update.	Referencing the publication mentioned is currently under discussion within the Department.
31E-047	Chapter 400; Index 401.2	Human Factors	Draft Text: Intersections should be designed for safe, convenient use by pedestrians of all ages and abilities. Comment: Revise to: Intersections should be designed for safe, convenient use by pedestrians AND BICYCLISTS of all ages and abilities.	Comment combined with other comments and resulted in a HDM change.	

31E-048	Chapter 400; Index 402.1	Capacity	Draft Text: (1) Unsignalized Intersections. Chapter 10 of the “Highway Capacity Manual”, gives methodology for capacity analysis of unsignalized intersections controlled by stop or yield signs. The assumption is made that major street traffic is not affected by the minor street movement. Unsignalized intersections generally become candidates for signalization when traffic backups begin to develop on the cross street or when gaps in traffic are insufficient for drivers to yield to crossing pedestrians. See the California MUTCD, Chapter 4C for signal warrants. Comment: Revise second to last sentence to reflect wording and meaning in CAMUTCD, Section 4C.05: Unsignalized intersections generally become candidates for signalization when traffic backups begin to develop on the cross street or when the traffic volume on the major street is so heavy that pedestrians experience excessive delay in crossing the major street. Also include information on bicycle signal warrants. (MUTCD section 4C.102) Supporting Documentation: CAMUTCD Chapter 4	Comment combined with other comments and resulted in a HDM change.	
31E-049	Chapter 400; Index 403.6		Draft Text: Intersections with right-turn-only lanes shall be treated as shown in Figure 403.6B. Configurations that create a weaving area without defined lanes shall not be used. Comment: Last sentence conflicts with CAMUTCD.	Comment combined with other comments and resulted in a HDM change.	
31E-050	Chapter 400; Figure 403.6B		Draft Text: Item 4 Comment: Solid lines for bike travel through weaving area conflict with MUTCD striping in such a situation. Supporting Reference: CAMUTCD Chapter 9, Fig 9C-3, item b right lane becomes right turn only lane	Comment combined with other comments and resulted in a HDM change.	
31E-051	Chapter 400; Index 403.11		Draft Text: Bicycles especially are considered vehicles per the California Vehicle Code but because of their vulnerability, should have separate facilities and consideration if volumes warrant Conflicts with definition in chapter 62 that bicycles are not defined as vehicles in CVC. Comment: Revise to: Bicyclists should be accommodated at intersections by the inclusion of dedicated bicycle facilities including bike paths and bike lanes. When not feasible to include dedicated bicycle facilities, a wider shoulder may be considered." Clarify that the type of facility that is chosen should that take into account motor vehicle speeds, volumes, and traffic mix (e.g. trucks). On-street bikeways (class II bike lanes, Class III routes) are appropriate in some cases, while Class I bike paths are appropriate in other cases.	Comment combined with other comments and resulted in a HDM change.	
31E-052	Chapter 400; Index 403.11	Summary	Pedestrians can be prohibited from crossing one of more legs of an intersection if a reasonable alternative route exits. Comment: Revise to: Pedestrians MAY be prohibited from crossing one or more legs of an intersection if a reasonable alternative route exists AND IF UNMITIGATABLE SAFETY ISSUES OR TRAFFIC DELAY WARRANTS IT. It is preferable that pedestrian crossings are provided on all legs of an intersection. Pedestrian crossings in urban, suburban, and rural town centers with a history of safety issues should receive mitigating safety improvements before the decision is made to restrict pedestrian crossings. Supporting Documentation: http://www.fhwa.dot.gov/publications/research/safety/04100/	Comment combined with other comments and resulted in a HDM change.	
31E-053	Chapter 400; Index 403.12		Consider adding reduce speeds in advance of conflict areas, particularly in advance of pedestrian crossings.	Commentary, no response required.	

31E-054	Chapter 400; Index 405		Draft Text: On low to moderate speed roadways in severely constrained situations, consideration may be given to reducing the minimum lane width to 10 feet with approval of a design exception if truck or bus use is low. Comment: Good. Remove "severely constrained situations" and replace with more context-sensitive language, like in urban areas with traffic speeds of XX or lower... Supporting Documentation: See also "Potts, Harwood, Richard (2007). "The Relationship of Lane Width to Safety for Urban and Suburban Arterials," TRB Paper	Comment combined with other comments and resulted in a HDM change.	
31E-055	Chapter 600; Index 613.5		Draft Text: Preferably, all new or reconstructed shoulders should match the pavement structure of the adjacent traffic lane, except when the thickness of the flexible surface course can vary to account for the difference in cross slope between the traveled way and the shoulder. Comment: Add language acknowledging that shoulders serve as bicycle travel way, and that shoulder pavement should account for ride quality of cyclists and pedestrians. Treatments that result in rough riding surfaces (e.g. chip seal) should be avoided whenever feasible. Supporting Documentation: Caltrans Maintenance Manual Vol 1, A9-A10	Comment(s) beyond the scope of this HDM update.	Suggestions will be discussed with the Division of Maintenance - Pavement Program for consideration in a future HDM update that is currently being written.
31E-056	Chapter 600; Index 631.5	Rubberized (SAMI-R)	Draft Text: SAMI-R is a rubberized chip seal. Comment: Add language to discourage use of chip seal treatments due to rough surface, which adversely affects ride quality, especially for pedestrians and cyclists. Supporting Documentation: CA HDM 632.1	Comment did not result in a HDM change.	Chip seals are a cost-effective preventive maintenace strategy used by the Department to minimize pavement life-cycle costs.
31E-057	Chapter 900; Index 902.3		Draft Text: Plants should be located so that they will not obscure pedestrians and bicyclists at intersection or other conflict points. Comment: Consider providing a specific minimum setback (i.e. 5ft) that plants should placed from intersection.	Comment combined with other comments and resulted in a HDM change.	
31E-058	Chapter 900; Index 902.4		Draft Text: Sprinklers should be selected and placed to avoid overspray onto sidewalk, bikeways… Comment: Section should reference drip irrigation as a solution to avoiding spray onto sidewalks, paths, etc.	Commentary, no response required.	Not necessary to be stated in the manual. Landscape Architects that design these facilities currently take this into consideration.
31E-059	Chapter 900; Index 903.5	Rest Area Site Planning	Draft Text: Bicycle parking should be located in a safe area. Comment: Consider adding that bike parking should also be located close to the rest-stop site amenities.	Commentary, no response required.	Not necessary to be stated in the manual. Landscape Architects that design these facilities currently take this into consideration.
31E-060	Chapter 900; Index 905	Park and Ride Standards and Guidelines	Global issue for section. No mention of locating park and ride lots near bicycle facilities/pathways. Also, consider providing bike parking at these park and ride lots.	Comment combined with other comments and resulted in a HDM change.	

31E-061	Chapter 1000; Index 1000.1		The Streets and Highways Code, Sections 890.6 through 890.8 requires the Department and local agencies to develop design criteria and symbols for signs, markers, and traffic control devices for bikeways and roadways where bicycle travel is permitted. Section 892 further requires local agencies to comply with criteria and uniform symbols. Comment: Applicability of Chapter 1000 standards. The previous version contained this statement: "All city, county, regional and other local agencies responsible for bikeways or roads where bicycle travel is permitted must follow the minimum bicycle planning and design criteria contained in this and other chapters of this manual." The new version refers to Sections 890.6, 890.8, and 892, and states that 'the Department and local agencies' will develop design criteria etc. This change seems to infer that local agencies can create or conform to their own design standards, when in fact Chapter 1000 represents the required standards for all bikeways in California, as clearly stated in the previous version. We recommend keeping the original text.	Comment combined with other comments and resulted in a HDM change.	
31E-062	Chapter 1000; Index 1003.1	Class I Bikeways (Bike Paths)	Changes to this section are significant, and will result impact the viability of most future Class I bikeway projects in California, a major reduction in future projects (and therefore a major reduction in potential bicycle ridership/usage for all purposes), and make most existing Class I bikeways sub-standard. They will also greatly increase the liability exposure of public and private entities. We strongly recommend the changes in this section be modified as noted below.	Commentary, no response required.	
31E-063	Chapter 1000; Index 1003.4	Bicycles on Freeways	Removal of 1003.4 Bicycles on Freeways. The new version eliminates this section completely. While it may appear in other parts of the HDM, it is useful to keep in Chapter 1000 since it is bikeway-related. We recommend keeping this section in Chapter 1000.	Comment combined with other comments and resulted in a HDM change.	
31E-064	Chapter 1000; Index 1003.4		Draft Text: Trails that are multipurpose are not bicycle paths. Multipurpose trails typically are unpaved land used by bikers, runners, equestrians, and off-road bicyclists. Multipurpose trails do not meet Class I bikeway standards. These facilities should not be signed as bicycle paths. Where equestrians are expected, a separate equestrian trail should be provided. See Index 208.7 for equestrian undercrossing guidance. Class I bikeways, per the CVC, are for the exclusive use of bicycles and pedestrians. In addition, pavement requirements for bicycle travel are not suitable for horses. Horses require softer surfaces to avoid leg injuries. Bicyclists may not be aware of the need for very slow speeds and separation needed when approaching horses or passing from behind. Horses reacting to perceived danger from predators may behave unpredictably if bicyclists appear suddenly within their visual field, especially from behind. To help horses distinguish between bicyclists and predators, good visibility should be provided at all points between Class I bikeways and equestrian paths. When a corridor includes equestrian paths and Class I bikeways, the widest possible lateral separation should be provided between the two. A physical barrier, such as an open rail fence, adjacent to the bridle trail may be beneficial to induce horses to shy away from the bikeway, as long as the barrier does not block visibility between the equestrian trail and bicycle path. Subtle texturing of the bikeway surface can help horses hear and identify approaching bikeway traffic as bicyclists and not predators. See FHWA-EP-01-027, Designing Sidewalks and Trails for Access, for additional design guidance. Comment: 1003.4 Trails. This section has significant changes from the previous version, which was entitled 'Multipurpose Trails.' The previous section addressed paved and unpaved facilities developed by public agencies, primarily for recreational purposes, which may or may not conform to Class I standards. The past and current version attempted to define 'trails' and 'multipurpose trails' as	Comment combined with other comments and resulted in a HDM change.	
			being different than Class I bike paths based on their intended usage. The 2006 version refers to Class I's as being designed to be used 'primarily to serve bicycle travel,' and both versions state that multipurpose trails or trails will be used by 'bikers, runners, equestrians, and off-road bicyclists.' We recommend that Chapter 1000 clearly define the difference between a Class I bike path and a multipurpose trail (or 'trail') on the basis of funding source (facilities constructed with transportation funds) and planning designation by local agencies rather than projected usage or trip purpose patterns. It is also unclear how the discussion of equestrian use is appropriate in the HDM.		

31E-065	Chapter 1000; Index 1003.5	Miscellaneous Criteria	Draft Text: The following are miscellaneous bicycle treatment criteria. Specific application to Class I, and III bikeways are noted. Criteria that is not noted as applying only to bikeways apply to any highway where bicycle travel is expected, without regard to whether or not bikeways are established. Bicycle Paths on Bridges – See Topic 208. (1) Pavement Surface Quality. The surface to be used by bicyclists should be smooth, free of potholes, and the pavement edge uniform. For rideability on new construction, the finished surface should not vary more than ¼ inch from the lower edge of an 8-foot long straight edge when laid on the surface in any direction. The surface tolerances shown in Table 1003.5 shall be maintained for existing roads open to bicycle travel. These tolerances minimize the potential for causing bicyclists to lose control of their bicycle. Stricter tolerances should be achieved on new construction. Shoulder rumble strips are not suitable as a riding surface for bicycles. See the California MUTCD, Chapter 3B for additional information regarding rumble strip design considerations for bicycles. (2) Drainage Grates, Manhole Covers, and Driveways. Drainage inlet grates, manhole covers, etc., should be located out of the travel path of bicyclists whenever possible. When such items are in an area that may be used for bicycle travel, they shall be designed and installed in a manner that meets bicycle surface requirements. They shall be maintained flush with the surface when resurfacing. Comment: 1003.5 Miscellaneous Criteria. This section has been greatly reduced from the 2006 version, with sections on bridges removed. As with the Class II material, we recommend this be kept in Chapter 1000 to facilitate use by professionals designing bikeways.	Commentary, no response required.	A goal of this update is to redistribute, as appropriate, guidance that has been in Chapter 1000 to other locations in the HDM based upon the subject matter being discussed.
31E-066	Chapter 1000; Index 1003.1 (1)		Draft text: The minimum paved width for a two-way bike path shall be 10 feet. The minimum paved width for a one-way bike path shall be 8 feet. Comment: Minimum Class I Width. The proposed change in minimum width from 8 to 10 feet (for twoway bike paths) and from 5 to 8 feet (for oneway bike paths) is not based on any published research, deviates from the AASHTO Guide for the Development of Bicycle Facilities, will impact the feasibility of most future Class I bikeway projects, and will make most existing Class I bikeways sub-standard, thus increasing liability. Our studies show that 8 feet of width is sufficient for locations with low to moderate usage, and in constrained locations with adequate warning. We recommend keeping 8 feet and 5 feet as a minimum width, while strongly encouraging wider facilities 'where needed and feasible.'	Comment combined with other comments and resulted in a HDM change.	
31E-067	Chapter 1000; Index 1003.1 (1)		If there is an adjacent pedestrian walkway, the edge of the traveled way of the bicycle path shall be separated from the pedestrian walkway by a minimum width of 5 feet of unpaved material. Comment: Shoulder Areas/Lateral Clearance. The changed text represents a significant departure from the previous version. The new text refers to a minimum 5-feet separation between a Class I bike path and an adjacent pedestrian walkway. However, this conflicts with the HDM that already states that Class I bike paths are meant for bicycles and pedestrians sharing the same surface, and it also conflicts with statements in the same paragraph stating that adjacent 2-feet wide shoulders can be used by pedestrians.	Comment combined with other comments and resulted in a HDM change.	

31E-068	Chapter 1000; Index 1003.1 (12)	Grades	Draft Text: Bike paths grades must meet DIB 82... The maximum grade rate recommended for bike paths should be 5 percent. Sustained grades should be limited to 2 percent. For grades above 5 percent, appropriate grade warning signs should be provided. The longitudinal grade is normally controlled by grade limits for pedestrian accessibility on bike paths shared with pedestrians. Comment: (12) Grades. Conformance with and interpretation of the ADA requirements, and especially maximum gradient, remains a major challenge on many Class I Bike path projects. The lack of information on this topic in Chapter 1000, conflicts between various sources and changing interpretation of the law add to this confusion. For example, Chapter 1000 refers to grades 'above 5%', when other sources identify 5% as an absolute maximum. The use of landings on a Class I bike path also have conflicting statements. We recommend including the latest relevant language from DIB-82-04 (December 1, 2010) along with other relevant sources referred to in that memorandum. Supporting Documentation: DIB 82-04	Commentary, no response required.	DIB 82 is currntly referenced in this section of the HDM as a source of further information.
31E-069	Chapter 1000; Index 1003.1 (2)	Clearance to Obstructions	Draft Text: A minimum 3-foot horizontal clearance from the paved edge of a bike path to obstructions shall be provided adjacent to the pavement (see Figure 1003.1A). Adequate clearance from fixed objects is needed regardless of the paved width. If a wide path is paved contiguous with a continuous fixed object (e.g., fence, wall, building), a 4-inch white edge line, 2 feet from the fixed object, is recommended to minimize the likelihood of a bicyclist hitting it. The clear width of a bicycle path on structures between railings shall be not less than 12 feet. It is desirable that the clear width of structures be equal to the minimum clear width of the path plus shoulders (i.e., 14 feet). Comment: The new version also calls for a 3-feet horizontal clearance versus 2-feet previously, and a clear width on structures of 12 feet from 8 feet. These new requirements are not based on any published research we are aware of, will make many future projects unfeasible, and make current facilities sub-standard. While we support maximizing separation and clearances as much as possible, the reality is that many corridors are constrained and don't allow for these requirements. We recommend this text revert to the original version.	Comment combined with other comments and resulted in a HDM change.	
31E-070	Chapter 1000; Index 1003.1 (4)		Draft Text: Bicycle path intersections and approaches should be on relatively flat grades. Stopping sight distances at intersections should be checked and adequate warning should be given to permit bicyclists to stop before reaching the intersection, especially on downgrades. It is discouraged to combine a bicycle path with a crosswalk at the intersection of two roadways. Bicycle versus motor vehicle collisions typically occur at intersections, when bicyclists enter pedestrian crosswalks. Comment: (4) Intersections with Highways. The new version states: "It is discouraged to combine a bicycle path with a crosswalk at the intersection of two roadways. Bicycle versus motor vehicle collisions typically occurs at intersections, when bicyclists enter pedestrian crosswalks." This statement is unclear, and appears to conflict with standard practice and the treatment of bicyclists at intersections by the CVC. Firstly, bike paths and crosswalks are two different facility types—and all bike paths must utilize crosswalks at intersections. Since there can only be one crosswalk per intersection leg, they must be the same as a pedestrian crosswalk. Bicyclists can either ride adjacent to the crosswalk as a bicyclist, or, walk their bikes across as a pedestrian. We recommend removing this section.	Comment combined with other comments and resulted in a HDM change.	

31E-071	Chapter 1000; Index 1003.1 (4)	Separation Between Bike Paths and Highways	Draft Text: A wide separation is recommended between bike paths and adjacent highways (see Figure 1003.1B). The minimum separation between the edge of pavement of a bicycle path and the edge of pavement or curb of a road or street shall be 10 feet. The separation width is unpaved and does not include curbs or sidewalks or the bicycle path shoulder. Separation less than 10 feet from the edge of the shoulder shall include a minimum 48 inches high continuous barrier to prevent bicyclists from encroaching onto the highway. Suitable barriers may include fences or dense shrubs. Low barriers or intermittent barriers (e.g., dikes, raised traffic bars, posts connected by cable or wire, flexible channelizers, etc.) are not to be used because bicyclists could fall over or through them and into oncoming automobile traffic. Comment: (5) Separation between Bike Paths and Highways. The changed text calling for a 10-feet minimum separation between roadway and Class I bike path (versus 5 feet previously) represents a significant departure from the previous version. While the title refers to 'highways,' in practice this has always applied to Class I bike path adjacent to any roadway or street, and will impact the viability of most future side paths or cycle tracks in California. These new requirements are not based on any published research we are aware of, will make many future projects unfeasible, and make current facilities sub-standard. While we support maximizing separation and clearances as much as possible, the reality is that many corridors are constrained and don't allow for these requirements. We recommend this text revert to the original version.	Comment combined with other comments and resulted in a HDM change.	
31E-072	Chapter 1000; Index 1003.3 (2)	Sidewalk Bikeway Criteria	Draft Text: Sidewalks shall not be designated as a Class III bikeway as they are not designed for bicycle travel. It is important to recognize that wide sidewalks that do not otherwise meet design standards for bicycle paths do not meet the safety and mobility needs of bicyclists. Wide sidewalks can encourage higher speed bicycle use and can increase the potential for conflicts with turning traffic at intersections as wells as with pedestrians and fixed objects. In residential areas, sidewalk riding by young children too inexperienced to ride in the street is common. . But it is inappropriate to sign these facilities as bikeways because it may lead bicyclists to think it is designed to meet their safety and mobility needs. Bicyclists should not be encouraged (through signing) to ride facilities that are not designed to accommodate bicycle travel. Comment: 1003.3 Class III Bikeways (Bike Routes). This section has been significantly changed from the original version. Section (2) Sidewalk Bikeway Criteria has had most of its text removed or changed. The statements in this section along with the new requirements for Class I bike paths indicate a strong bias against side paths or cycle tracks that is not justified by any research. Since there is likely to be confusion about the difference between 'wide sidewalks', side paths, and cycle tracks, this should be addressed in greater detail in Chapter 1000. While we agree with most of the changes shown in this section, we recommend that Chapter 1000 specifically address the issue of side paths and cycle tracks, since these are common project types in the State, and also keep some of the elements of the previous text from this section.	Comment(s) beyond the scope of this HDM update.	Currently being discussed with the California Bicycle Advisory Committee.
31E-073	Chapter 1000; Index 1003.3 (2)	Shared Bus and Bikeways	Draft Text: In general, the sharing of bus lanes and bicycles is discouraged. The shared use of BRT lanes and bicycles shall not be allowed. Bus lane bicycle sharing should be considered only under special circumstances, such as: Bus lanes and bicycles are generally not compatible, and present significant safety risks to bicyclists. (a) If the operating speed of buses are 25 mph or below; (b) If the grade of the facility is +5% or less; (c) To provide bikeway continuity and there is inadequate space for bicyclists as outlined elsewhere in this chapter. Comment: (3) Shared Bus and Bikeways. While this new section if helpful, we do not believe there is sufficient research yet to prohibit the shared use of bus lanes or BRT lanes with bicycles.	Comment combined with other comments and resulted in a HDM change.	
Commentor 32E:	**Jenny Bard, Regional Air Quality Director**				
Organization:	**American Lung Association**				

Comment Number	Chapter & Index	Index Title	Comment/Issue	Resolution of Comment/Issue	Commentary, as necessary, on Resolution of Comment/Issue
32E-001	Introductory Section		Highway Design Manual, (is) a document that will have far-reaching effects on the health of our communities through injury reduction, increased physical activity, and reductions in harmful air pollutants, including greenhouse gases. We believe that these public benefits should be raised in the introductory section of the manual as an overarching frame for highway design. In order to underscore these health impacts and benefits inherent in community design strategies, we support the inclusion of an introduction to the Manual that emphasizes the health benefits of complete streets and safe and accessible walking, cycling and transit in all roadway designs. Attached please find our Smart Growth is Healthy Growth document that includes several citations on the public health and cost savings benefits of policies that reduce the need to drive that we would like included in an introduction.	Commentary, no response required.	Suggestions related to the introductory section should be discussed in policy documents, not design guidance.
32E-002	Overall		The American Lung Association in California strongly supports policies that improve access for pedestrians, bicyclists and transit users because of the many public health benefits of reducing the need to drive. Because of the urgency of the need to design our roadways and communities that best support alternative transportation, we are writing to support the recommendations made by the California Bicycle Coalition, Walk California and Walk Sacramento.	Commentary, no response required.	
32E-003	Overall		We agree with the urgency of the need to update the Highway Design Manual with latest recommendations and research on safe and convenient bicycle and pedestrian designs. This is key to meeting growing awareness and demand for walkways and bikeways that are comfortable and safe for all kinds of users, and will maximize public health and equity benefits.	Commentary, no response required.	
32E-004	Overall		Communities designed around cars and driving are responsible for traffic pollution and congestion, contribute to global warming, and limit opportunities for healthy, active lifestyles. According to the American Lung Association State of the Air Report 2011, California is home to some of the nation's most polluted cities and counties, and vehicle emissions represent the largest source — about 40 percent — of greenhouse gas emissions. As California's population expands, we must design our communities to reduce driving and encourage greater use of public transit, walking and cycling.	Commentary, no response required.	
32E-005	Overall		SB 375 (California's Sustainable Communities and Climate Protection Act, 2008) calls on our regions to develop Sustainable Communities Strategies to reduce greenhouse gases from driving. These strategies can not only reduce unhealthy vehicle emissions but promote healthier, more active neighborhoods with reduced rates of chronic illnesses and premature death. The Highway Design Manual can best support these efforts through best practice policies that fully consider the needs of pedestrians and cyclists, including stronger safety performance measures and tools to better evaluate health and equity impacts of potential projects, such as the use of a Health Impact Assessment.	Commentary, no response required.	
32E-006	Overall		We also urge Caltrans to include language to make an explicit commitment to create a transportation system that advances health and social equity and environmental justice. Health and social inequities can be addressed by improving transportation choices that will enable residents of low income communities and communities of color to have better access to nutritious food, health care services, recreational facilities, affordable housing, and job opportunities which are often out of reach. A coalition of health groups recently developed a set of health and equity metrics that should be considered by all regional metropolitan planning organizations to ensure that health and equity outcomes are maximized in transportation and land use planning and investments. We encourage Caltrans to similarly support healthier, more equitable communities through its Highway Design Manual which will be used in planning decisions throughout California.	Commentary, no response required.	
32E-007	Overall		. . . . transportation facilities are long-term investments that remain in place for many years, considering the potential short- and long-term health and equity impacts of proposals on all users can support the selection of projects that maximize the system and community benefits and make progress toward the state's transportation, health, equity and sustainability goals.	Commentary, no response required.	
Commentor 33E:	**Anthony Powers, Senior Engineer**				
Organization:	**Dokken Engineering**				
Comment Number	**Chapter & Index**	**Index Title**	**Comment/Issue**	**Resolution of Comment/Issue**	**Commentary, as necessary, on Resolution of Comment/Issue**
	Please see File 33E to view comments received on Draft Pages of HDM and their resolution.				

Commentor 34E:	**Michael P. Garvey, Chair; submitted by Iris Yuan, samTrams**				
Organization:	**Grand Boulevard Initiative Working Committee**				
Comment Number	**Chapter & Index**	**Index Title**	**Comment/Issue**	**Resolution of Comment/Issue**	**Commentary, as necessary, on Resolution of Comment/Issue**
	Please see File 34E to view comments received on Draft Pages of HDM and their resolution.				
Commentor 35E:	**Steve Schweigerdt, Trail Development Manager**				
Organization:	**Rails-to-Trails Conservancy, Western Regional Office**				
Comment Number	**Chapter & Index**	**Index Title**	**Comment/Issue**	**Resolution of Comment/Issue**	**Commentary, as necessary, on Resolution of Comment/Issue**
35E-001	Global		2 column format is difficult to follow on computer screen. Suggest change to single column.	Commentary, no response required.	
35E-002	Chapter 1000; Index 1001.1		Draft Text: Design guidance for Class I bikeways (bike paths) and Class III bikeways (bike routes) is provided in this chapter. Design guidance that addresses the mobility needs of bicyclists on Class II bikeways (bike lanes) is distributed throughout this manual where appropriate. Comment: Add - Additional innovative bikeway facilities that build on standard bikeways to benefit bicyclists have been developed in California and around the world. NACTO's newly released Cities for Cycling Urban Bikeway Design Guide gives planners and engineers guidance on implementing many of these new concepts in their communities. Planners and engineers can check the status of many of these innovations for adoption into the Manual on Uniform Traffic Control Devices (MUTCD) on the Federal Highway Administration (FHWA) website at www.fhwa.dot.gov/environment/bikeped/mutcd_bike.htm. Supporting Documentation - - http://nacto.org/cities-for-cycling/design-guide/	Comment(s) beyond the scope of this HDM update.	The NATCO publication is to be reviewed as a separate activity once this HDM update is completed. Plus, the CA MUTCD is currently referenced throughout the HDM, as needed, where it is beneficial to the reader.
35E-003	Chapter 1000; Index 1001.4		Draft Text: (1) Definitions (a) Class I Bikeway (Bike Path). Provides a completely separated right of way for the exclusive use of bicycles and pedestrians with crossflow by motorists minimized. (b) Class II Bikeway (Bike Lane). Provides a striped lane for one-way bike travel on a street or highway. (c) Class III Bikeway (Bike Route). Provides for shared use with pedestrian or motor vehicle traffic. Comment: How will cycle tracks, protected bikeways, and bicycle boulevards fit into these classifications? Recommend elimination of Class definitions or the following : (1) Definitions (a) Class I Bikeway (Bike Path). Provides a completely separated right of way for the exclusive use of bicycles and pedestrians with crossflow by motorists minimized. (b) Class II Bikeway (Bike Lane). Provides a striped, buffered, or physically protected lane for bike travel on a street or highway. Cycle tracks can be classified as Class II Bikeways. (c) Class III Bikeway (Bike Route). Provides for shared use with pedestrian or motor vehicle traffic. Bicycle boulevards are Class III facilities, usually with additional wayfinding signage and priority travel for bicyclists. Supporting Documentation - - http://nacto.org/cities-for-cycling/design-guide/	Comment(s) beyond the scope of this HDM update.	Bikeway classifications are defined in the California Streets and Highways Code. Any changes to them requires legislation.

35E-004	Chapter 1000; Index 1001.4		Draft Text: Off-street bikeways in exclusive corridors can be effective in providing new recreational opportunities, or in some instances, desirable commuter routes. Comment: Inaccurate and diminishes the importance of separated facilities. Replace with - Separated shared-use paths play an important role in heavily urbanized communities, often forming the backbone of the bicycling network, with bike lanes and routes feeding from neighborhoods into the popular paths that offer access to active transportation destinations, schools, open space, scenic vistas and park systems. They integrate physical activity into daily routines and effect positive change in neighborhoods where the demand for improved health and community empowerment is greatest. Riders of all ages and skill levels feel comfortable on these shared-use paths since they are completely separated from traffic. Supporting Documentation - - San Jose Annual Trail report, Iron Horse Trail, Metro Orange Line, Marin North South Corridor and many other shared-use paths have documented peak use at commute times.	Commentary, no response required.	
35E-005	Chapter 1000; Index 1001.4		Draft Text: The decision to develop bikeways should be made with the knowledge that bikeways are not the solution to all bicycle-related problems. Many of the common problems are related to improper bicyclist and motorist behavior and can only be corrected through effective education and enforcement programs. The development of well conceived bikeways can have a positive effect on bicyclist and motorist behavior. Conversely, poorly conceived bikeways can be counterproductive to education and enforcement programs. Comment: Diminishes the role of facilities needed for bicyclists - replace with - Providing an interconnected network of bikeways along with education and enforcement will improve safety and acces for bicyclists. A balanced network composed of shared-use paths, cycle tracks, bike lanes and bicycle boulevards will appeal to a large cross-section of the population and help increase cycling rates in California. Supporting Documentation - - > J. Pucher, R. Buehler, "Cycling for a Few or for Everyone: The Importance of Social Justice in Cycling Policy," World Transport Policy and Practice, 15: 1 (May 2009): 57-64. Available online at http://policy.rutgers.edu/faculty/pucher/CyclingEveryoneWTPP.pdf > J. Pucher, R. Buehler, U. Kunert, Making Transportation Sustainable: Insights from Germany, (Brookings Institution Metropolitan Policy Program, April 2009). Available online at http://www.brookings.edu/reports/2009/%7E/media/Files/rc/reports/2009/0416_germany_transportation_buehler/0416_germany_transportation_report.pdf > J. Pucher, R. Buehler, "Cycling for Everyone: Lessons from Europe," Transportation Research Record: Journal of the Transportation Research Board, 2074 (November 2008): 58-65. Available online at http://policy.rutgers.edu/faculty/pucher/Cycling%20for%20Everyone%20TRB.pdf	Comment combined with other comments and resulted in a HDM change.	
35E-006	Chapter 1000; Index 1002.1 (1)		Draft Text: Most bicycle travel in the State now occurs on streets and highways without bikeway designations. This probably will be true in the future as well. Comment: Is there a source for this statement? With the rapid development of bikeways since the last HDM I suspect this is no longer the case. Recommend removal as it diminishes the importance of creating bikeways.	Comment combined with other comments and resulted in a HDM change.	
35E-007	Chapter 1000; Index 1002.1 (3, and 4)		Suggest adding benefits of cycle tracks and bicycle boulevards in these sections.	Comment(s) beyond the scope of this HDM update.	Cycle tracks are currently not in favor with the California Bicycle Advisory Committee. Further discussions are pending. Bicycle boulevards are a community decision and tend to be located off the State highway system. Therefore, local community guidelines apply.

35E-008	Chapter 1000; Index 1003.1(1)		Draft Text: The minimum paved width for a two-way bike path shall be 10 feet. The minimum paved width for a one-way bike path shall be 8 feet. Comment: What justification is given for increasing the minimum width? 8 foot wide trails are common and appropriate for locations with low to moderate use. Making this change would impact the feasibility of Class I projects in many areas, both where there are physical or financial constraints, and in rural areas where on street options may not exist. While 10 and 12 foot widths are desirable in areas with higher use, this should be noted without changing the minimum standard. 5 foot one-way paths are also adequate in many situations. Please reconsider this change.	Commentary, no response required.	The change from 8 feet to 10 feet is to be consistent with the AASHTO Guide for the Development of Bicycle Facilities.
35E-009	Chapter 1000; Index 1003.1(1)		Draft Text: If there is an adjacent pedestrian walkway, the edge of the traveled way of the bicycle path shall be separated from the pedestrian walkway by a minimum width of 5 feet of unpaved material. Comment: What justification is given for the 5 foot separation? This conflicts with the ability of pedestrians to use the shoulder. It would most likely result in pathways not providing an adjacent pedestrian walkway in constrained areas. Since this is an issue of feasibility, making this standard a recommendation rather than a requirement is preferable.	Comment combined with other comments and resulted in a HDM change.	
35E-010	Chapter 1000; Index 1003.1 (2)		Draft Text: (2) Clearance to Obstructions. A minimum 3-foot horizontal clearance from the paved edge of a bike path to obstructions shall be provided adjacent to the pavement (see Figure 1003.1A). Adequate clearance from fixed objects is needed regardless of the paved width. If a wide path is paved contiguous with a continuous fixed object (e.g., fence, wall, building), a 4-inch white edge line, 2 feet from the fixed object, is recommended to minimize the likelihood of a bicyclist hitting it. The clear width of a bicycle path on structures between railings shall be not less than 12 feet. It is desirable that the clear width of structures be equal to the minimum clear width of the path plus shoulders (i.e., 14 feet). Comment: What justification is given for larger clearance? While we support maximizing clearances from obstructions as much as possible, this requirement could make many projects infeasible. Many urban corridors have severe space constraints that could provide a great Class I facility but not meet these requirements. Please reconsider this change.	Comment combined with other comments and resulted in a HDM change.	12 feet changed to 10 feet between rails.
35E-011	Chapter 1000; Index 1003.1 (5)		Draft Text: Separation Between Bike Paths and Highways. A wide separation is recommended between bike paths and adjacent highways (see Figure 1003.1B). The minimum separation between the edge of pavement of a bicycle path and the edge of pavement or curb of a road or street shall be 10 feet. The separation width is unpaved and does not include curbs or sidewalks or the bicycle path shoulder. Separation less than 10 feet from the edge of the shoulder shall include a minimum 48 inches high continuous barrier to prevent bicyclists from encroaching onto the highway. Suitable barriers may include fences or dense shrubs. Low barriers or intermittent barriers (e.g., dikes, raised traffic bars, posts connected by cable or wire, flexible channelizers, etc.) are not to be used because bicyclists could fall over or through them and into oncoming automobile traffic. Comment: These new requirements are not based on any published research we are aware of, will make many future projects unfeasible, and make current facilities sub-standard. While we support maximizing separation and clearances as much as possible, the reality is that many corridors are constrained and don't allow for these requirements. We recommend this text revert to the original version. Since there is no separation for Class II facilities, how is this requirement arrived at? In situations without intersections or driveways, adjacent sidepaths are an excellent solution to provide bicycle access. This requirement may be appropriate for freeways, but in practice is applied to all streets and roadways (as it states in the 2nd sentence). Please revise to apply only to freeways, remove this requirement, or revert to the original 5 foot requirement.	Comment combined with other comments and resulted in a HDM change.	
35E-012	Chapter 1000; Index 1003.1 (5)		Please determine if cycle tracks are classified as Class I or II facilities and indicate how they would meet these requirements if they are classified as Class I.	Comment(s) beyond the scope of this HDM update.	Cycle tracks are neither. They are currently not defined in the California Streets and Highways Code. Cycle tracks are currently not in favor with the California Bicycle Advisory Committee. Further discussions are pending.

35E-013	Chapter 1000; Index 1003.1 (15)		Draft Text: (15) Entry Control for Bicycle Paths Comment: We applaud the inclusion of a process for installing bollards, since there is a proliferation of unnecessary barriers located on bike paths.	Commentary, no response required.	
35E-014	Chapter 1000; Index 1003.3		Draft Text: Class III facilities are shared facilities, either with motor vehicles on the street, or with pedestrians on sidewalks, and in either case bicycle usage is secondary. Comment: Conflicts with (2) which prohibits sidewalks as Class III facilities. Bicycle usage on Class III street should not be considered secondary. Also bicycle boulevards should be mentioned. Suggested language: Class III bike routes are shared facilities with features that benefit bicyclists. Shared lane markings such as sharrows are commonly used to connect gaps in Class II or Class I bikeways with Class III Bike Routes.....Bicycle boulevards are Class III bicycle routes that feature additional treatments to favor cycling. The additional treatments often include restricted access for motor vehicles, signage and wayfinding, pavement markings and preferential right-of-way with limited stops for the bicyclists. These treatments ensure slower motor vehicle speeds and lower volumes that allow slower and less experienced bicyclists to feel comfortable taking the lane and mixing with the limited traffic on the street.	Comment combined with other comments and resulted in a HDM change. Comment(s) beyond the scope of this HDM update. Comment combined with other comments and resulted in a HDM change.	Bicycle usage is not to be considered secondary. Bicycle boulevards are a community decision and tend to be located off the State highway system. Additional treatment text has been modified.
35E-015	Chapter 1000; Index 1003.4		Draft Text: Trails that are multipurpose are not bicycle paths. Multipurpose trails typically are unpaved land used by bikers, runners, equestrians, and off-road bicyclists. Multipurpose trails do not meet Class I bikeway standards. These facilities should not be signed as bicycle paths. Comment: The terms "trail" and "shared-use path" are synonomous for most people and explanation would be helpful. Suggested language: Trails are defined in this document as unpaved multipurpose facilities suitable for recreational use by hikers, runners, equestrians, and off-road bicyclists. While many Class I facilities are named as trails (e.g. Iron Horse Regional Trail, San Gabriel River Trail), trails as defined here do not meet Class I bikeway standards and should not be signed as bicycle paths.	Comment combined with other comments and resulted in a HDM change.	Therefore, local community guidelines apply.

Individuals

Commentor 36E: **John Cinatl**
Organization: **Bicycle Advocate**

Comment Number	Chapter & Index	Index Title	Comment/Issue	Resolution of Comment/Issue	Commentary, as necessary, on Resolution of Comment/Issue
36E-001	Chapter 40	Federal Aid	Page 40-52 – List within this page - among the SAFETEA-LU (Federal) programs - the Safe- Routes-to-School portion of SAFETEA-LU.	Comment did not result in a HDM change.	Waiting to update this Index. Once the new federal transportation bill is passed, this section of the HDM will be updated to match it.
36E-002	Chapter 60	Nomenclature	Pg 60-67 – (15) Traffic Control Devices – comment - shouldn't loop detectors and ped/bike activated push buttons activators be listed as – or at least within - traffic control devices?	Comment did not result in a HDM change.	The California MUTCD should be used to obtain those details.
36E-003	Chapter 60; Topic 62, Index 62.1	Geometric Cross Sections	Page 60-54 - Add new definition following Bike Lane – Bike Route – "Class III bikeways, also known as bike routes. are intended to provide continuity to the bikeway system. Bike routes are established along through routes not served by Class I or II bikeways, or to connect discontinuous segments of bikeway (normally bike lanes). Class III facilities are shared facilities, either with motor vehicles on the street, or with pedestrians on sidewalks."	Comment combined with other comments and resulted in a HDM change.	
36E-004	Chapter 60; Topic 62, Index 62.1	Geometric Cross Sections	Page 60-55 - Update definition #9 to read ….." (9) Shoulder. The portion of the roadway contiguous with the traveled way for accommodations of stopped vehicles, for emergency use, for errant vehicle recovery, and for lateral support of base and surface courses. In some cases, the shoulder can accommodate bicyclists and pedestrians. It must also be remembered that, unless prohibited, bicycles, pedestrians and people in wheelchairs use the roadway shoulder for their travels and as such must always be accommodated on our highway system. Shoulder therefore must be designed to accommodate these roadway users.	Comment combined with other comments and resulted in a HDM change.	

36E-005	Chapter 100; Index 108.4	Bus Rapid Transit	Page 100-105 This discussion must add a section that BRT facilities shall not eliminate existing or planned bike lanes or routes. BRT Lanes and Bike Lanes can overlap each other and co-exist with cooperation between all parties.	Comment combined with other comments and resulted in a HDM change.	
36E-006	Chapter 100	Basic Design Policies	Pages 100-133 (Corrections Needed) Re-number the page numbers between Pgs.100-133 and 100-135. The page number that is currently shown is Pg 200-134 (top of page) and needs to be re-numbered to read Pg 100-134.	Comment resulted in a HDM change.	
36E-007	Chapter 200; Topic 205 , Index 205.1 (5)	Surfacing Road Connections & Driveways; Surfacing.	Pages 200-162; Suggestion – rewrite to read …….. Surfacing. All points of private access ~~should~~ **must** be surfaced with adequate width and depth of pavement to serve the anticipated traffic. The surfacing ~~should~~ **must** extend from the edge of the traveled way to the right of way line so as not to allow gravel, mud and debris to enter the highway shoulder wherein it will interfere with the safe passage of bicycles, pedestrian and people in wheelchairs.	Comment did not result in a HDM change.	This is a case-by-case decision. Therefore, should is the appropriate word to use.
36E-008	Chapter 200	Geometric Design & Structure Standards	Pages 200-181 – Combination Vehicular Barrier and Pedestrian Railings for Bridges. – To comply with DD-64-R1, and the Governor's Complete Street Bill, it would be my suggestion that ONLY the Type 732 barriers (without raised sidewalks) be constructed on California bridges. Having the bride shoulder completely free of obstructions and raided ramps/sidewalks allows the right hand area to be use for a combination of emergency parking, bikeways and walkways – something that is not possible if there is a raised sidewalk or a curb. Chain link railing, if needed, can be of Type 3, 6 or 7 design as desired.	Comment(s) beyond the scope of this HDM update.	A Design Information Bulletin is in the process of being written on this subject.
36E-009	Chapter 300 – Geometric Cross Section		Page 300-199 – Topic 302 – Highway Shoulder Standards – 302.1 Width Suggest the second paragraph be expanded to read….."Paved shoulders are appropriate and preferable to bike lanes in rural areas. If rumble strips are placed in the shoulder they shall be placed adjacent to the edge stripe with a minimum of 5 feet of usable shoulder width available to the right of the grooved or raised rumble strip (See Standard Plans A40A and A40B for further detail)……"	Comment combined with other comments and resulted in a HDM change.	
36E-010	Chapter 300 – Geometric Cross Section		Page 300-203 – Figure 301.2a – Typical Class 2 Bikeway (Bike Lane) Cross-Section Please, please…. pretty please, EXPAND this diagram to include both **DIKES** AND CURBS. Dikes are discussed within Figure 303.3 and are now being used EXTENSIVELY along California highways (in rural areas MORE SO than curbs) to control storm water. None of our current drawings account for spacing wherein dikes are in use and this need to be upgraded ASAP. Many dikes have a 1" lip of one design or another that can easily catch bike tires and lead to a serious accident. Type A dike is similar to a regular curb – but Types D & E are not and should be discussed and shown within Figure 301.2a.	Comment combined with other comments and resulted in a HDM change.	
36E-011	Chapter 300; Table 307.2		Page 300-203; Comment - To fully comply with the Governor's Complete Streets Law, and our own internal DD-64-R1, we (i.e. Caltrans) should, for once, adopt AASHTO's minimum highway shoulder width – 8' minimum (or wider). Dump our 4' guidelines for low volume roadways – which typically have more bikes on them than higher capacity roadways.	Comment did not result in a HDM change.	The HDM guidance substantially complies with AASHTO guidance, including that for shoulder widths.
36E-012	Chapter 400; Figure 403.6B, Diagram 3		Pages 400-250 & 400-251 – this diagram should not be allowed. Any optional right turn lanes in the middle of other lanes is extremely dangerous for bikes. And …… Diagram 4 – the wording should be changed to "cars to yield" and not "bikes to yield" – the bikes are going straight – it's the cars that are turning and merging into the RTO lane.	Comment did not result in a HDM change.	Markings are shown as placed on the pavement surface and are to be read in the direction of travel.
36E-013	Chapter 500		Pages 500-307 Freeway-to-Freeway Interchanges – Design Considerations Suggest adding another design consideration regarding handling of bikes through freeway-to-freeway interchanges. (f) Bicycles - occasionally, because no other alternate route is available, freeway-to-freeway interchanges may need to provide for bicycle facilities. These facilities should be constructed as integrated, but separate, Class 1 facilities (see Chapter 1000 for additional details) rather than as Class 2 or 3 facilities within the roadway itself.	Comment did not result in a HDM change.	Already discussed in HDM Indexes 502.1 and 502.2.

36E-014	Chapter 600; Index 603.5	Reconstruction	Page 600-365; with the passage of the Governor's Complete Streets Law and our own internal DD-64-R1 is would be appropriate to broaden this section's wording. "With the implementation of DD-64-R1 and the Governor's Complete Streets Law, reconstruction features typically include the addition of lanes, bike lanes, pedestrian and ADA facilities as well as significant change to the horizontal or vertical alignment of the highway…."	Comment did not result in a HDM change.	Reconstruction, as discussed in this section of the HDM, is in the context of pavement structural sections. Plus, adding policy to the HDM is not appropriate.
36E-015	Chapter 652; Topic 653	Storm Water Management - Other Considerations	Page 650 - 455; Consider adding Topic 653.6 – Bicycle and Pedestrians Bicycle, pedestrians and persons in wheelchairs must always be a consideration when handling storm water as they frequently use the highway shoulders as their travel way.	Comment did not result in a HDM change.	Discussed elsewhere. The discussion in this portion of the HDM relates to the pavement structural section.
36E-016	Chapter 800; Index 801.4	Objectives of Drainage Design	Page 800-475; Change to read ……. "Drainage design seeks to prevent the retention of water by a on highways, bike lanes and shoulder areas used by pedestrians and people in wheelchairs, and provide for removal of water from the roadway through a detailed analysis considering all pertinent factors.	Comment did not result in a HDM change.	Expanding the guidance by listing bike lanes and shoulders is not needed.
36E-017	Chapter 800; Topic 806	Definition of Drainage Terms	Page 800-495 ; Update the added definition to read: "Grate. A framework of bars, usually cast iron or welded steel, used as a screen to cover the intake of a drainage inlet. In shoulder areas only bike and wheelchair friendly grate types may be used. See Standards Plans and Standard Specifications (D77B) for requirements.	Comment did not result in a HDM change.	Guidance information is not to be included in definitions.
36E-018	Chapter 830; Topic 831, Index 831.1	Basic Concepts	Page 830-546; Expand the first paragraph to read ….."Roadway drainage involves the collection, conveyance, removal, and disposal of surface water runoff from the traveled way, bicycle facilities, shoulders, sidewalks, ADA ramps and adjoining areas defined in Index 62.1(7) as comprising the roadway.	Comment did not result in a HDM change.	Expanding the guidance by listing bike lanes and shoulders is not needed.
36E-019	Chapter 830; Index 836.2	Curbs & Gutters	Pg 830 – 554; Gutter Design - (1) Capacity Top of Page – Right Column – add in wording following the words "…..locations where parking is allowed or where driveways are constructed. It should be noted that bike facilities (bike lanes and/or bike routes) may be located in a portion of the roadway gutter. It so, the use bike friendly grates (see Standard Plans D77B) are required which may adversely affect the capacity of gutters.	Comment did not result in a HDM change.	Bicycle proof grates are discussed in detail in HDM Topic 837 under "Inlet Design"; see Index 837.2 (2).
36E-020	Chapter 830; Index 837.3	Location and Spacing	Page 830-561 ; Expand this topic – "Governing Factors. The location and spacing of inlets depend mainly on these factors: Add (J) Local driveways and ADA wheelchair curb ramps.	Comment did not result in a HDM change.	Covered under (g) and (c).
36E-021	Chapter 900; Topic 903	Utility Spacing	Page 900-722; Item #6 – Telecommunication Equipment – expand by adding the term "WiFi" to this discussion	Comment(s) beyond the scope of this HDM update.	Not currently required.
36E-022	Chapter 900; Topic 904, Index 904.3	Vista Point Standards and Guidelines, Design Features & Facilities	Page 900-727; Consider expanding Design Feature & Facilities #2 – Parking - to read…… (2) Parking - Paved parking areas should be provided. Parking capacity should be based on an analysis of current traffic data. However, at least five vehicle spaces should be provided. Parking should not exceed 0.025 times the DHV or 50 spaces, whichever is less. Exceptions to this rule may be required if hiking trails to distant locations begin at this vista points. In such cases it could be expected that vehicle occupants would be away from their vehicles for a long period of time necessitating the need for additional parking. Parking stalls should …"	Comment combined with other comments and resulted in a HDM change.	
36E-023	Chapter 900; Topic 904, Index 904.3	Vista Point Standards and Guidelines, Design Features & Facilities	Page 900-727; The previous section dealing with Highway Rest Areas (Section 903) has an appropriate discussion regarding bicycle parking. This section - Vista Point Guidelines – does not. Please consider adding the bike parking section from Topic 903 (plus my additional wording) to this topic and re-numbering the remaining features listed. (3) Bicycle Parking. On highways where bicycling is not prohibited, bicycle parking should be provided. Consult the District Bicycle Coordinator for information on placement, capacity, and design requirements for bicycle parking. If hiking trails are a part of the vista point additional bicycle parking may be required due to the length of time cyclists are away from their bicycles	Comment combined with other comments and resulted in a HDM change.	
36E-024	Chapter 900; Topic 905, Index 905.2	Park and Ride Standards and Guidelines, Design Features and Facilities	Page 900-728; Please consider rewording this newly added section as follows…… Park and Ride facilities are to be designed as multi-modal facilities. Provision for pedestrians, people in wheelchairs, bicyclists (bicycle parking (both short-term and long-term), transit riders, single occupancy vehicles, and multi occupancy vehicles are to be provided as appropriate.	Comment did not result in a HDM change.	Expansion not needed.

36E-025	Chapter 1000; Index 1001.3	Vehicle Code References	Pages 1000-729 & 1000-730; To the current list of CVC Sections consider adding CVC sections 21400 & 21401 (both reads similar to S& H Code 890.8) and 21465. Section 21400 -- Caltrans and local agencies to develop design criteria and symbols for signs, markers, and traffic control devices for roadways users. Section 21401 - Only those official traffic control devices that conform to the uniform standards and specifications promulgated by the Department of Transportation shall be placed upon a street or highway. Section 21465 – No person shall place, maintain, or display upon, or in view of, any highway any unofficial sign, signal, device, or marking, or any sign, signal, device, or marking which purports to be or is an imitation of, or resembles, an official traffic control device	Comment combined with other comments and resulted in a HDM change. Comment combined with other comments and resulted in a HDM change. Comment did not result in a HDM change.	Refernce not needed in HDM; relates to California MUTCD.
36E-026	Chapter 1000; Index 1003.3	Class 3 Bikeways (Bike Routes)	Page 1000-751; #3 Shared Bike & Busway. I disagree with the following statement and think it should be discussed further before inclusion in the HDM: “The shared use of BRT lanes and bicycles shall not be allowed. Bus lanes and bicycles are generally not compatible, and present significant safety risks to bicyclists “. Reason – As the District Bike Coordinator, and previously as one of two District D-6 Mass Transit Coordinators (5311 Rural Transit Program) I acquired a tremendous amount of knowledge regarding mass transit. As such, I know that transit drivers are highly trained municipal workers. They are also a known commodity (i.e. their demeanor and their driving skills are know and logged) as opposed to the general public drivers who are unknown commodities. As such, they are overall better drivers than general public drivers and further can be instructed (and properly trained and supervised) by management to co-exist with bikes when the two share a bike lane/BRT lane. Separated BRT lanes are typically used only once every 15 to 20 minutes (called headway) – the rest of the time they are totally vacant – and offer a perfect opportunity for a shared BRT/bike lane. Lastly, BRT lanes are typically 10-12 feet wide so there is lots of room for movement.	Comment combined with other comments and resulted in a HDM change.	
36E-027	Chapter 1000; Index 1003.5	Miscellaneous Criteria	Page 1000-752; (1) Pavement Surface Quality - Middle of second paragraph - left column – consider adding the following wording…….“Shoulder rumble strips are not suitable as a riding surface for bicycles. See the California MUTCD, Chapter 3B, and Standard Plan A40A & A40B, for additional information regarding rumble strip design and installation considerations for bicycles. Same page - next topic…….. Bottom paragraph – left column - consider adding the following additional wording to this paragraph ---- (2) Drainage Grates, Manhole Covers, and Driveways. Drainage inlet grates, manhole covers, etc., should be located out of the travel path of bicyclists whenever possible. When such items are in an area that may be used for bicycle travel, they shall be designed and installed in a manner that meets bicycle surface requirements (See Standard Plan D77B for bike friendly drainage grates)……..”	Comment combined with other comments and resulted in a HDM change.	
36E-028	Chapter 1000		Possible Additional Topic for Chapter : Bike Facilities in Vehicular Tunnels. Where there are no alternatives, bikeways may be added to, or built as part of vehicular tunnels. Contact the Division of Engineering Services - Structure Design (DES-SD), and the Headquarters’ Bicycle Design Review Department regarding allowable conditions. Additionally, see Section 309.3 Tunnel Clearances for additional information.	Comment did not result in a HDM change.	Accommodating bicyclists in tunnels is currently discussed in Index 309.3.
36E-029	Overall		I was extremely impressed with the overall presentation and applaud everyone who worked on it.	Commentary, no response required.	

Commentor 37E: **Dan Gallagher**
Organization: **Public Interest Energy Research, Transportation Research Area**

Comment Number	Chapter & Index	Index Title	Comment/Issue	Resolution of Comment/Issue	Commentary, as necessary, on Resolution of Comment/Issue
37E-001	Chapter 80; Index 81.2	Highway Context	This section contains progressive and strong language that promotes critical thinking and smart street design. For example, “A “one-size-fits-all” design philosophy is not departmental policy, nor is it a design philosophy. Designers need to be aware of and sensitive to land use, community context and the associated user needs of the facility.” This kind of language should be maintained in the final draft.	Commentary, no response required.	

37E-002	Chapter 100; Topic 105; Index 105.2	Sidewalks and Walkways	Stronger language could be added on implementing sidewalks. The HDM took the approach that sidewalks may not be implemented until “enough population growth, density and development occur.” However, an alternative viewpoint to consider is that quality developers will be attracted to complete streets and encouraged to develop communities that accommodate all users. The statement about needing sufficient density for sidewalks is also vague and should be more descriptive, requiring sidewalks more often than not. The HDM should not provide justification to cities and developers that allows them to avoid implementing sidewalks; it should simply require sidewalks where necessary and encourage them everywhere else.	Commentary, no response required.	The HDM discussion is design guidance. Deputy Directive 64 covers Departmental policy which discusses working with our local partners on projects to get the project details decided for each project.
37E-003	Chapter 100; Topic 105	Pedestrian Facilities; (8) - Transit Stops.	Current Wording - - (8) Transit Stops. Sidewalks should be built to connect transit stops to local streets. This is good, but it should be required that all new/existing transit stops are connected to sidewalks. When transit stops are not connected to sidewalks it may give the appearance that transit is not pedestrian friendly which will prevent potential transit users from utilizing the services.	Comment did not result in a HDM change.	Local standards should also be consulted. Also see Index 108.2 "Transit Loading Facilities".
37E-004	Chapter 300; Topic 301 - Index 301.2A	Traveled Way Standards	Current Text - - 301.2A. Bicycle lanes must not be placed between the parking area and the curb. This prevents the use of a concept called “floating parking.” Floating parking switches the placement of on-street vehicle parking and a Class II bike lane, putting bicyclists closer to the sidewalk and parked cars closer to through traffic. This creates a buffer for bicyclists and protects them from through traffic by the distance of the parking lane. Furthermore, it prevents bicyclists from being “doored” because it moves bicyclists to the right side of parked cars. StreetFilms.org has an excellent short video explaining the concept with helpful visuals.	Comment(s) beyond the scope of this HDM update.	Requires further study and input from the California Bicycle Advisory Committee.
37E-005	Chapter 1000; Index 1003.2	Class II Bikeways (Bike Lanes)	There is a minimum bike lane width but there is no recommended bike lane width? Wider bike lanes make bicyclists feel safer and could increase their presence among drivers. The extra space in the bike lane allows bicyclists to avoid car doors and other obstructions that might be present in their travel lane.	Comment did not result in a HDM change.	Bike lane widths are no longer in this Index. See text as it has been edited in Chapter 300.
37E-006	Topic 1003 - Bikeway Design Criteria	1003.2 Class II Bikeways (Bike Lanes)	Bike boxes are not mentioned anywhere in the updated HDM, but should be included as their use has become more widespread in recent years. The 2011 Draft CA MUTCD does not include any mention of bike boxes, but it seems logical that a section of the HDM includes the design of “traffic control devices” for bicycles such as bike boxes. Furthermore, the Caltrans website has a brochure about bike boxes and discusses a bike box that was recently implemented in District 5-San Luis Obispo. Colored bike lanes could also be mentioned in this section. Sufficient time has been given for different cities across the country to experiment with various colored bike lanes, so it may be appropriate for California to recommend various colors for different scenarios.	Comment did not result in a HDM change.	Bike boxes and coloered bike lanes are operational features and are covered in the California MUTCD, not the HDM.
37E-007	Overall		As a whole, the HDM Update makes a lot of positive changes that will improve the California transportation network for all users of roadways. Providing more visual examples alongside descriptions could be helpful in communicating new concepts. Zoning codes in California have increasingly become more illustrative and visionary in recent years with the use of form-based codes. Caltrans seems to be transitioning to a more visionary approach with the adoption of Context Sensitive Solutions, but the HDM could still benefit from a greater use of imagery.	Commentary, no response required.	
Commentor 38E:	**Richard Haggstrom**				
Organization:	**Pedestrian Advocate**				
Comment Number	**Chapter & Index**	**Index Title**	**Comment/Issue**	**Resolution of Comment/Issue**	**Commentary, as necessary, on Resolution of Comment/Issue**

38E-001	Chapter 400	Indexes 403.7 & 405.4	I think it is important to have better guidance on midblock pedestrian crossings. This is one of the most important and effective pedestrian safety tools we have, and it is not the same as a "pork chop," or a continuous median, as one might assume from the HDM draft. The new material on bulbouts is quite good. We need something on the same level for midblock pedestrian refuges. Specifically, I think the guidance on pedestrian islands should be consolidated or at least mutually referenced (here I am referring to 403.7 Refuge Areas, and 405.4 Traffic Islands). Most importantly, I think it is crucial to include a separate illustration, either a typical sketch or photo, of an unsignalized midblock pedestrian crossing refuge island. A very good example is in our Complete Intersections guide, Figure 6.2, "Treatments for Unsignalized Midblock Pedestrian Crossings."	Comment(s) beyond the scope of this HDM update.	The Complete Intersections guide was created to be a complimentary document to the HDM. Therefore, portions of it should not be duplicated in the HDM.
38E-002	Overall		Overall, the draft HDM is a big step forward in implementing Caltrans' Complete Streets policy, and I think it deserves the enthusiastic support of SHSP CA 8.	Commentary, no response required.	